User's Manual

Satellite U500/U500D

Satellite Pro U500/U500D

TOSHIBA

Leading Innovation

computers.toshiba-europe.com

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TOSHIBA Satellite U500/U500D, Satellite Pro U500/U500D
Portable Personal Computer User's Manual

First edition September 2009

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This product and the original options are designed to observe the related EMC (Electromagnetic Compatibility) and safety standards. However, TOSHIBA cannot guarantee that this product still observes these EMC standards if options or cables not produced by TOSHIBA are connected or implemented. In this case the persons who have connected/implemented those options/cables have to provide assurance that the system (PC plus options/cables) still fulfils the required standards. To avoid general EMC problems, the following guidance should be noted:

- Only CE marked options should be connected/implemented
- Only best shielded cables should be connected

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Working environment

This product was designed to fulfil the EMC (Electromagnetic Compatibility) requirements to be observed for so-called “Residential, commercial and light industry environments”. TOSHIBA do not approve the use of this product in working environments other than the above mentioned “Residential, commercial and light industry environments”.

For example, the following environments are not approved:

- Industrial Environments (e.g. environments where a mains voltage of 380 V three-phase is used)
- Medical Environments
- Automotive Environments
- Aircraft Environments

Any consequences resulting from the use of this product in working environments that are not approved are not the responsibility of TOSHIBA.

The consequences of the use of this product in non-approved working environments may be:

- Interference with other devices or machines in the near surrounding area.
- Malfunction of, or data loss from, this product caused by disturbances generated by other devices or machines in the near surrounding area.

Therefore TOSHIBA strongly recommend that the electromagnetic compatibility of this product should be suitably tested in all non-approved working environments before use. In the case of automobiles or aircraft, the manufacturer or airline respectively should be asked for permission before use of this product.

Furthermore, for general safety reasons, the use of this product in environments with explosive atmospheres is not permitted.

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Modem warning notice

Conformity Statement

The equipment has been approved to [Council Decision 98/482/EC - “TBR 21”] for pan-European single terminal connection to the Public Switched Telephone Network (PSTN).

However, due to differences between the individual PSTNs provided in different countries/regions the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance.

Network Compatibility Statement

This product is designed to work with, and is compatible with the following networks. It has been tested to and found to conform with the additional requirements conditional in EG 201 121.

Germany	ATAAB AN005,AN006,AN007,AN009,AN010 and DE03,04,05,08,09,12,14,17
Greece	ATAAB AN005,AN006 and GR01,02,03,04
Portugal	ATAAB AN001,005,006,007,011 and P03,04,08,10
Spain	ATAAB AN005,007,012, and ES01
Switzerland	ATAAB AN002
All other countries/ regions	ATAAB AN003,004

Specific switch settings or software setup are required for each network. Refer to the relevant sections of the user guide for more details.

The hookflash (timed break register recall) function is subject to separate national type approvals. It has not been tested for conformity to national type regulations, and no guarantee of successful operation of that specific function on specific national networks can be given.

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Following information is only for EU-member states:

Disposal of products

The crossed out wheeled dust bin symbol indicates that products must be collected and disposed of separately from household waste. Integrated batteries and accumulators can be disposed of with the product. They will be separated at the recycling centres.

The black bar indicates that the product was placed on the market after August 13, 2005.

By participating in separate collection of products and batteries, you will help to assure the proper disposal of products and batteries and thus help to prevent potential negative consequences for the environment and human health.

For more detailed information about the collection and recycling programmes available in your country, please visit our website (*http://eu.computers.toshiba-europe.com*) or contact your local city office or the shop where you purchased the product.

Disposal of batteries and/or accumulators

The crossed out wheeled dust bin symbol indicates that batteries and/or accumulators must be collected and disposed of separately from household waste.

If the battery or accumulator contains more than the specified values of lead (Pb), mercury (Hg), and/or cadmium (Cd) defined in the Battery Directive (2006/66/EC), then the chemical symbols for lead (Pb), mercury (Hg) and/or cadmium (Cd) will appear below the crossed out wheeled dust bin symbol.

By participating in separate collection of batteries, you will help to assure the proper disposal of products and batteries and thus help to prevent potential negative consequences for the environment and human health.

For more detailed information about the collection and recycling programmes available in your country, please visit our website (*http://eu.computers.toshiba-europe.com*) or contact your local city office or the shop where you purchased the product.

This symbol may not be displayed depending on the country and region where you purchased

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Disposing of the computer and the computer's batteries

- Discard this computer in accordance with applicable laws and regulations. For further information, contact your local government.
- This computer contains rechargeable batteries. After repeated use, the batteries will finally lose their ability to hold a charge and you will need to replace them. Under certain applicable laws and regulations, it may be illegal to dispose of old batteries by placing them in the trash.
- Please be kind to our shared environment. Check with your local government authority for details regarding where to recycle old batteries or how to dispose of them properly. Disposal of this material may be regulated due to environmental considerations. For disposal, reuse or recycling information, please contact your local government.

EnergyStar® Program

Your Computer model may be ENERGY STAR® compliant. If the model you purchased is compliant, it is labeled with the ENERGY STAR logo on the computer and the following information applies. TOSHIBA is a partner in the ENERGY STAR Program and has designed this computer to meet the latest ENERGY STAR guidelines for energy efficiency. Your computer ships with the power management options preset to a configuration that will provide the most stable operating environment and optimum system performance for both AC power and battery modes.

To conserve energy, your computer is set to enter the low-power Sleep mode which shuts down the system and display within 15 minutes of inactivity in AC power mode. TOSHIBA recommends that you leave this and other energy saving features active, so that your computer will operate at its maximum energy efficiency. You can wake the computer from Sleep mode by pressing the power button.

Products that earn the ENERGY STAR prevent greenhouse gas emissions by meeting strict energy efficiency guidelines set by the US EPA and the EU Commission. According to the EPA, a computer meeting the new ENERGY STAR specifications will use between 20% and 50% less energy depending on how it is used.

Visit *http://www.eu-energystar.org* or *http://www.energystar.gov* for more information regarding the ENERGY STAR Program.

REACH - Compliance Statement

The new European Union (EU) chemical regulation, REACH (Registration, Evaluation, Authorization and Restriction of Chemicals), entered into force on 1 June 2007. Toshiba will meet all REACH requirements and is committed to provide our customers with information about the chemical substances in our products according to REACH regulation.

Please consult the following website *www.toshiba-europe.com/computers/info/reach* for information about the presence in our articles of substances included on the candidate list according to article 59(1) of Regulation (EC) No 1907/2006 ("REACH") in a concentration above 0.1 % weight by weight.

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Following information is only for Turkey:

- **Compliant with EEE Regulations:** Toshiba meets all requirements of Turkish regulation 26891 “Restriction of the use of certain hazardous substances in electrical and electronic equipment”.
- The number of possible pixel failures of your display is defined according to ISO 13406-2 standards. If the number of pixel failures is less than this standard, they will not be counted as defect or failure.
- Battery is a consumption product, since the battery time depends on the usage of your computer. If the battery can not be charged at all, then it is a defect or failure. The changes in battery time is not a defect or failure.

Optical disc drive standards

TOSHIBA Satellite U500/U500D, Satellite Pro U500/U500D computer is shipped with one of the following drives preinstalled: DVD Super Multi (±R DL), DVD-ROM & CD-R/RW or DVD-ROM.

The drive has one of the following labels:

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

APPAREIL A LASER DE CLASSE1

KLASS 1 LASER APPARAT

Before it is shipped, the Class 1 Laser is certified to meet the United States Chapter 21 Standards of the Department of Health and Human Services (DHHS 21 CFR).

For any other country, the drive is certified to meet the Class 1 Laser standards of IEC825 and EN60825.

This computer is equipped with one of the optical drives in the following list:

- The drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference.
  Should the unit ever require maintenance, contact an authorized service location.
- Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure
- To prevent direct exposure to the laser beam, do not try to open the enclosure.

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Optical disc drive safety instructions

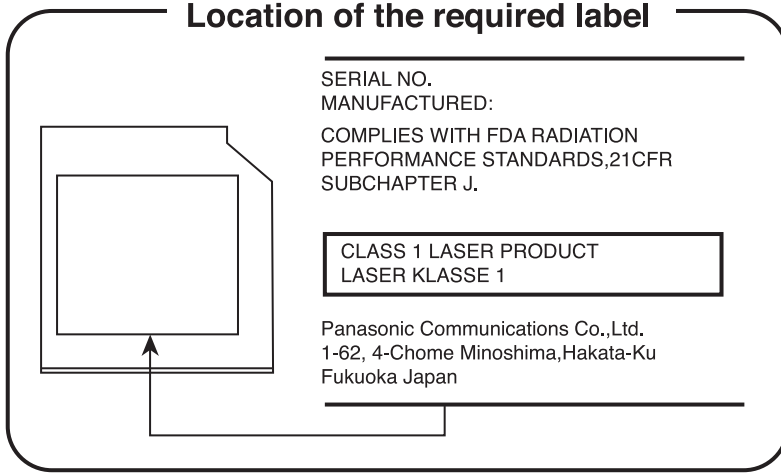
Be sure to check the international precautions at the end of this section.

Panasonic

DVD Super Multi (+R Double Layer) UJ862A/VJ862E

- *The DVD Super Multi Double Layer drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.*
- *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*
- *To prevent direct exposure to the laser beam, do not try to open enclosure.*

Location of the required label



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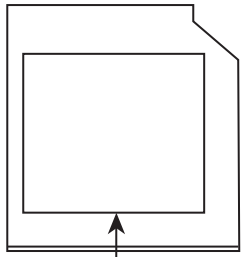
Hitachi-LG Data Storage, Inc.

DVD Super Multi (+R Double Layer) GS20F

- *The DVD Super Multi Double Layer drive employs a laser system. To ensure proper use of this product, please read this instruction manual carefully and retain for future reference. Should the unit ever require maintenance, contact an authorized service location.*
- *Use of controls, adjustments or the performance of procedures other than those specified may result in hazardous radiation exposure.*
- *To prevent direct exposure to the laser beam, do not try to open enclosure.*

Location of the required label



SERIAL NO.
MANUFACTURED:

COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS,21CFR SUBCHAPTER J.

CLASS 1 LASER PRODUCT
LASER KLASSE 1

Hitachi-LG Data Storage,Inc.
22-23,Kaigan 3-chome,Minato-ku,
Yokyo,108-0022 Japan

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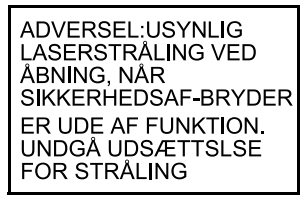
International Precaution

CAUTION: *This appliance contains a laser system and is classified as a "CLASS 1 LASER PRODUCT." To use this model properly, read the instruction manual carefully and keep this manual for your future reference. In case of any trouble with this model, please contact your nearest "**AUTHORIZED service station.**"*

To prevent direct exposure to the laser beam, do not try to open the enclosure.

VORSICHT: *Dieses Gerät enthält ein Laser-System und ist als "LASERSCHUTZKLASSE 1 PRODUKT" klassifiziert. Für den richtigen Gebrauch dieses Modells lesen Sie bitte die Bedienungsanleitung sorgfältig durch und bewahren diese bitte als Referenz auf. Falls Probleme mit diesem Modell auftreten, benachrichtigen Sie bitte die nächste "**autorisierte Service-Vertretung**".*

Um einen direkten Kontakt mit dem Laserstrahl zu vermeiden darf das Gerät nicht geöffnet werden.



ADVARSEL: *Denne mærking er anbragt udvendigt på apparatet og indikerer, at apparatet arbejder med laserstråler af klasse 1, hviket betyder, at der anvendes laserstrlier af svageste klasse, og at man ikke på apparatets yderside kan bilve udsat for utilladellg kraftig stråling.*

APPARATET BOR KUN ÅBNES AF FAGFOLK MED SÆRLIGT KENDSKAB TIL APPARATER MED LASERSTRÅLER!

Indvendigt i apparatet er anbragt den her gengivne advarselsmækning, som advarer imod at foretage sådanne indgreb i apparatet, at man kan komme til at udsatte sig for laserstråling.

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OBS! *Apparaten innehåller laserkomponent som avger laserstråining överstigande gränsen för laserklass 1.*

VAROITUS. *Suojakoteloa si saa avata. Laite sisältää laserdiodin, joka lähetää näkymätöntä silmilie vaarallista lasersäteilyä.*

CAUTION: *USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED IN THE OWNER'S MANUAL MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.*

VORSICHT: *DIE VERWENDUNG VON ANDEREN STEURUNGEN ODER EINSTELLUNGEN ODER DAS DURCHFÜHREN VON ANDEREN VORGÄNGEN ALS IN DER BEDIENUNGSANLEITUNG BESCHRIEBEN KÖNNEN GEFÄHRLICHE STRAHLENEXPOSITIONEN ZUR FOLGE HABEN.*

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Table of Contents

Preface

General Precautions

Chapter 1 Introduction

Equipment checklist 1-1
Special features 1-9
TOSHIBA Value Added Package 1-12
Utilities and Applications 1-12
Options 1-16

Chapter 2 The Grand Tour

Front with the display closed 2-1
Left side 2-3
Right side 2-5
Underside 2-7
Front with the display open 2-9
Optical Disc Drive 2-12
AC adaptor 2-13

Chapter 3 Getting Started

Connecting the AC adaptor 3-2
Opening the display 3-4
Turning on the power 3-5
Windows® 7 setup 3-5
Turning off the power 3-6
Restarting the computer 3-10
System Recovery Options and
restoring the pre-installed software 3-10

Chapter 4 Operating Basics

Using the TouchPad 4-1
Using the fingerprint sensor 4-2
USB Sleep and Charge function 4-9
Using the Function buttons 4-11
Using the Web Camera 4-12
Using the microphone 4-14
Using the Face Recognition 4-14
Using the optical disc drive 4-17
Optical Drive Auto Lock (Provided with some models) 4-23
Writing CD/DVDs on DVD Super Multi Double Layer drives 4-24
TOSHIBA Disc Creator 4-28
TOSHIBA DVD PLAYER 4-30

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Media care 4-31
Sound system 4-32
Modem 4-34
Wireless communications 4-37
LAN 4-39
Wireless WAN Guide 4-41
Cleaning the computer 4-45
Moving the computer 4-45
Using the Hard Disk Drive (HDD) Protection 4-46
Using the touchscreen (provided with some models) 4-48
Touchscreen gestures 4-50

Chapter 5 **The Keyboard**

Typewriter keys 5-1
F1 ... F12 function keys 5-2
Soft keys: Fn key combinations 5-2
Emulating keys on enhanced keyboard 5-2
Hot keys 5-3
Windows® special keys 5-5
Keypad overlay 5-5
Generating ASCII characters 5-7

Chapter 6 **Power and Power-Up Modes**

Power conditions 6-1
Power indicators 6-2
Battery 6-3
Care and use of the battery pack 6-5
Replacing the battery pack 6-9
Starting the computer by password 6-11
Power-up modes 6-12
Panel power off/on 6-12
System Auto Off 6-12

Chapter 7 **HW Setup**

Accessing HW Setup 7-1
HW Setup Window 7-1

Chapter 8 **Optional Devices**

ExpressCard Slot 8-2
Memory cards SD/SDHC/MMC/MEMORY STICK / MEMORY STICK PRO/xD 8-4
Memory expansion 8-7
Additional battery pack 8-11
Additional AC adaptor 8-11
External monitor 8-11
HDMI 8-12
Security lock 8-13

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Chapter 9 **Troubleshooting**
Problem solving process 9-1
Hardware and system checklist 9-3
TOSHIBA support 9-21

Chapter 10 **Legal Footnotes**

Appendix A **Specifications**
Environmental Requirements A-1
Built-in Modem A-2

Appendix B **Display Controller**
Display Controller B-1

Appendix C **Wireless LAN**
Card Specifications C-1
Radio Characteristics C-2
Supported Frequency Sub-bands C-3

Appendix D **AC Power Cord and Connectors**
Certification agencies D-1

Appendix E **TOSHIBA PC Health Monitor**
Starting the TOSHIBA PC Health Monitor E-2
If a TOSHIBA PC Health Monitor message is displayed E-2

Appendix F **If your computer is stolen**

Glossary

Index

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Preface

Congratulations on your purchase of the TOSHIBA Satellite U500/U500D, Satellite Pro U500/U500D computer. This powerful notebook computer provides excellent expansion capability, including multimedia devices, and it is designed to provide years of reliable, high-performance computing.

This manual tells how to set up and begin using your TOSHIBA Satellite U500/U500D, Satellite Pro U500/U500D computer. It also provides detailed information on configuring your computer, basic operations and care, using optional devices and troubleshooting.

If you are a new user of computers or if you're new to portable computing, first read over the *Introduction* and *The Grand Tour* chapters to familiarize yourself with the computer's features, components and accessory devices. Then read *Getting Started* for step-by-step instructions on setting up your computer.

If you are an experienced computer user, please continue reading the preface to learn how this manual is organized, then become acquainted with this manual by browsing through its pages. Be sure to look over the *Specifications* section of the Introduction, to learn about features that are uncommon or unique to the computer. If you are going to install PC Cards or connect external devices such as a monitor, be sure to read Chapter 8, *Optional Devices*.

Manual contents

This manual is composed of the following chapters, appendixes, a glossary and an index.

Chapter 1, *Introduction*, is an overview of the computer's features, capabilities, and options.

Chapter 2, *The Grand Tour*, identifies the components of the computer and briefly explains how they function.

Chapter 3, *Getting Started*, provides a quick overview of how to begin operating your computer and gives tips on safety and designing your work area.

Chapter 4, *Operating Basics*, includes instructions on using the following devices: TouchPad, Sound System, optical media drives, modem, wireless communication and LAN. It also provides tips on care of the computer, and CD/DVDs.

Chapter 5, *The Keyboard*, describes special keyboard functions including the keypad overlay and hot keys.

Chapter 6, *Power and Power-Up Modes*, gives details on the computer's power resources and battery save modes.

Chapter 7, *HW Setup* explains how to configure the computer using the HW Setup program.

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Chapter 8, *Optional Devices*, describes the optional hardware available.

Chapter 9, *Troubleshooting*, provides helpful information on how to perform some diagnostic tests, and suggests courses of action if the computer doesn't seem to be working properly.

Chapter 10, *Legal Footnotes*, provides Legal Footnotes information related to your computer.

The *Appendices* provide technical information about your computer.

The *Glossary* defines general computer terminology and includes a list of acronyms used in the text.

The *Index* quickly directs you to the information contained in this manual.

Conventions

This manual uses the following formats to describe, identify, and highlight terms and operating procedures.

Abbreviations

On first appearance, and whenever necessary for clarity, abbreviations are enclosed in parentheses following their definition. For example: Read Only Memory (ROM). Acronyms are also defined in the Glossary.

Icons

Icons identify ports, dials, and other parts of your computer. The indicator panel also uses icons to identify the components it is providing information on.

Keys

The keyboard keys are used in the text to describe many computer operations. A distinctive typeface identifies the key top symbols as they appear on the keyboard. For example, **Enter** identifies the Enter key.

Key operation

Some operations require you to simultaneously use two or more keys. We identify such operations by the key top symbols separated by a plus sign (+). For example, **Ctrl + C** means you must hold down **Ctrl** and at the same time press **C**. If three keys are used, hold down the first two and at the same time press the third.

ABC	When procedures require an action such as clicking an icon or entering text, the icon's name or the text you are to type in is represented in the type face you see to the left.

Display

ABC	Names of windows or icons or text generated by the computer that appears on its display screen is presented in the type face you see to the left.

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Messages

Messages are used in this manual to bring important information to your attention. Each type of message is identified as shown below.

Pay attention! A caution informs you that improper use of equipment or failure to follow instructions may cause data loss or damage your equipment.

Please read. A note is a hint or advice that helps you make best use of your equipment.

Indicates a potentially hazardous situation, which could result in death or serious injury, if you do not follow instructions.

Terminology

This term is defined in this document as follows:

Start — The word “Start” refers to the “” button inWindows®.

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General Precautions

TOSHIBA computers are designed to optimize safety, minimize strain and withstand the rigors of portability. However, certain precautions should be observed to further reduce the risk of personal injury or damage to thecomputer.

Be certain to read the general precautions below and to note the cautions included in the text of the manual.

Providing adequate ventilation

- Always make sure your computer and AC adaptor have adequate ventilation and protected from overheating when the power is turned on or when the AC adaptor is connected to a power outlet (even if your computer is in Sleep Mode). In this condition, observe the following:
  - Never cover your computer or AC adaptor with any object.
  - Never place your computer or AC adaptor near a heat source, such as an electric blanket or heater.
  - Never cover or block the vents including those located at the base of the computer.
  - Always operate your computer on a hard flat surface. Using your computer on a carpet or a soft material can block the vents.
- Always provide sufficient space around the computer.
- Overheating your computer or AC adaptor could cause system failure, computer or AC adaptor damage or fire, possibly resulting in a serious injury.

Creating a computer-friendly environment

Place the computer on a flat surface that is large enough for the computer and any other items you are using, such as a printer.

Leave enough space around the computer and other equipment to provide adequate ventilation. Otherwise, they may overheat.

To keep your computer in prime operating condition, protect your work area from:

- Dust, moisture, and direct sunlight.
- Equipment that generates a strong electromagnetic field, such as stereo speakers (other than speakers that are connected to the computer) or speakerphones.
- Rapid changes in temperature or humidity and sources of temperature change such as air conditioner vents or heaters.
- Extreme heat, cold, or humidity.
- Liquids and corrosive chemicals.

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Stress injury

Carefully read the Instruction Manual for Safety and Comfort. It contains information on the prevention of stress injuries to your hands and wrists that can be caused by extensive keyboard use.

Heat injury

- Avoid prolonged physical contact with the computer. If the computer is used for long periods, its surface can become very warm. While the temperature will not feel hot to the touch, if you maintain physical contact with the computer for a long time, for example if you rest the computer on your lap or if you keep your hands on the palm rest, your skin might suffer a low-heat injury.
- If the computer has been used for a long time, avoid direct contact withthe metal plate supporting the various interface ports as this can become hot.
- The surface of the AC adaptor can become hot when in use but this condition does not indicate a malfunction. If you need to transport the AC adaptor, you should disconnect it and let it cool before moving it.
- Do not lay the AC adaptor on a material that is sensitive to heat as the material could become damaged.

Pressure or impact damage

Do not apply heavy pressure to the computer or subject it to any form of strong impact as this can damage the computer's components or otherwise cause it to malfunction.

ExpressCard overheating

Some ExpressCards can become hot during prolonged use which may result in errors or instability in the operation of the device in question. In addition, you should also be careful when you remove a PC or ExpressCard that has been used for a long time.

Mobile phones

Please be aware that the use of mobile phones can interfere with the audio system. The operation of the computer will not be impaired in any way, but it is recommended that a minimum distance of 30cm is maintained between the computer and a mobile phone that is in use.

Instruction Manual for Safety and Comfort

All important information on the safe and proper use of this computer is described in the enclosed Instruction Manual for Safety and Comfort. Be sure to read it before using the computer.

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Chapter 1

Introduction

This chapter provides an equipment checklist, and identifies the computer's features, options, and accessories.

Some of the features described in this manual may not function properly if you use an operating system that was not pre-installed by TOSHIBA.

Equipment checklist

Carefully unpack your computer. Save the box and packing materials for future use.

Hardware

Check to make sure you have all the following items:

- TOSHIBA Satellite U500/U500D, Satellite Pro U500/U500D Portable Personal Computer
- Universal AC adaptor and power cord
- Battery pack (is pre-installed in computer)
- Clearing cloth (is included with some models)

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Software

The following Windows® operating system and utility software are pre-installed:

- Windows® 7
- TOSHIBA Value Added Package
- TOSHIBA Recovery Media Creator
- TOSHIBA DVD Player
- TOSHIBA Assist
- TOSHIBA ConfigFree™
- TOSHIBA HDD Protection
- TOSHIBA Disc Creator
- TOSHIBA Face Recognition*
- TOSHIBA USB Sleep and Charge Utility*
- Bluetooth Stack for Windows by TOSHIBA*
- TOSHIBA PC Health Monitor
- Fingerprint Utility (Can be used only for models equipped with an fingerprint reader.)
- Windows® Mobility Center
- TOSHIBA Web Camera Application (Can be used only for models equipped with a Web camera)
- TOSHIBA Bulletin Board
- TOSHIBA ReelTime
- TOSHIBA Service Station
- TOSHIBA Eco Utility
- Online Manual

* The software is pre-installed with some models.

Documentation

- Satellite U500/U500D, Satellite Pro U500/U500D Personal Computer User's Manual
- Satellite U500/U500D, Satellite Pro U500/U500D Personal Computer Quickstart
- Instruction Manual for Safety and Control (included in User's Manual)
- Warranty information (included in User's Manual)

If any of the items are missing or damaged, contact your dealer.

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Features

Please visit your region's web site for the configuration details of the model that you have purchased.

Processor

Built-in	The processor type varies depending on model. To check which type of processor is inclued in your model, open the TOSHIBA PC Diagnostic Tool Utility by clicking **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **PC Diagnostic Tool**.

Memory

Slots	PC2-6400 1GB, 2GB, or 4GB Up to 4GB memory module can be installed in the memory slot for a maximum of 8GB system memory. The actual amount of useable system memory will be less than the installed memory modules.

For users of a 32-bit version of Windows, if your computer is configured with more than 3 GB memory, the memory might be displayed as approximately 3 GB only (depending on the computer's hardware specifications).

This is correct because the operating system usually displays the available memory instead of the physical memory (RAM) built into the computer.

Various system components (like the video adapter's GPU and PCI devices like Wireless LAN, etc.) require their own memory space. Since a 32-bit operating system cannot address more than 4 GB of memory, these system resources overlap the physical memory. It is a technical limitation that the overlapped memory is not available to the operating system. Even though some tools might display the actual physical memory built into your computer, the memory available to the operating system will still be approximately 3 GB only.

Video RAM	The memory in a computer's graphics adaptor used to store the image displayed on a bitmap display. The amount of Video RAM available is dependent on the computer's system memory. **Start** -> **Control Panel** -> **Appearance and Personalization** -> **Display** -> **Change display settings** (left menu)**.** The amount of Video RAM can be verified by clicking the **Advanced Settings...** button in the Display Settings window.

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Power

Battery Pack	Your computer is powered by a rechargeable lithium-ion battery pack.
RTC Battery	The internal RTC battery backs up the Real Time Clock and calendar.
AC Adaptor	The AC adaptor provides power to the system and recharges the batteries when they are low. It comes with a detachable power cord that will either have a 2-pin or 3-pin plug enclosure. Because it is universal, it can receive a range of AC voltage from 100 to 240 volts. However, the output current varies among different models. Using the wrong model can damage your computer. Refer to the *AC adaptor* section in Chapter 2, *The Grand Tour*.

Disks

Hard Disk Drive (HDD) or Solid State Drive (SSD)	This computer is equipped with hard disk drive (HDD) or solid state drive (SSD) types. The capacity of each HDD or SSD model is different. Please note that part of the hard disk or solid state drive's overall capacity is reserved as administration space.

- *In this manual, the word "HDD" or "Hard disk drive" also refers to SSD unless otherwise stated.*
- *SSD is a large-capacity storage media which uses Solid-State Memory in place of a magnetic disk of the hard disk.*

Under certain unusual conditions of prolonged non-use and/or exposure to high temperatures, the SSD may be vulnerable to data retention errors.

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Optical disc drive

DVD Super Multi (±R DL) drive

Some models are equipped with a full-size DVD Super Multi (±R DL) drive module that allows you to record data to rewritable CD/DVDs as well as run CD/DVDs without using an adaptor. It reads DVD-ROMs at maximum 8 speed and CD-ROMs at maximum 24 speed. It writes CD-R at up to 24 speed, CD-RW at up to 24 speed, DVD-R at up to 8 speed, DVD-RW at up to 6 speed, DVD-RAM at up to 5 speed, DVD+R at up to 8 speed, DVD-RW at up to 8 speed, DVD+R DL at up to 6 speed and DVD-R DL at up to 6 speed. This drive supports the following formats:

- DVD-ROM
- DVD-Video
- DVD-R
- DVD-RW
- DVD+R
- DVD+RW
- DVD-RAM
- DVD+R DL
- DVD-R DL
- CD-DA
- CD-Text
- CD-R
- CD-RW
- CD-ROM Mode 1, Mode 2
- CD-ROMXA Mode 2 (Form 1, Form 2)
- CD-G (Audio CD only)
- Photo CD (single/multi-session)
- Enhanced CD (CD-EXTRA)
- Addressing Method 2

2.6 GB and 5.2 GB DVD-RAM media cannot be read from or write to.

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Display

The computer's LCD panel supports high-resolution video graphics. The screen can be set at a wide range of viewing angles for maximum comfort and readability.

Display panel	13.3" WXGA CSV with 1280 horizontal × 800 vertical pixels. **Touchscreen Model** Operations on the display screen can be done by your finger. You can confirm the number of fingers you can use by clicking **Start** -> **Computer** -> **System properties** -> **Pen and Touch**. This computer supports only the Touch Feature even if the Computer Properties dialog box indicates that both the Pen and Touch features are available. This computer does not support using a pen as an input device on the screen.
Graphics Controller	Graphics controller maximizes display performance. Refer to Appendix B, *Display Controller* for more information.

Keyboard

Built-In	Internal keyboard compatible with IBM enhanced keyboard, embedded numeric overlay, dedicated cursor control, and keys. Refer to Chapter 5, *The Keyboard*, for details.

Pointing Device

Built-In TouchPad	A TouchPad and control buttons in the palm rest enable control of the on-screen pointer and scrolling of windows.

Ports

HDMI	This HDMI jack allows you to connect external display/audio devices. (Provided with some models)
External Monitor	This 15-pin port lets you connect an external video display.

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Universal Serial Bus (USB 2.0)	The computer has Universal Serial Bus ports that comply with the USB 2.0 standard, which enables data transfer speeds 40 times faster than the USB 1.1 standard. (The ports also support USB 1.1.)
eSATA/USB combo port	One eSATA/Universal Serial Bus (USB) combo enables a chain connection of USB-equipped or eSATA-equipped devices to your computer through the port.

Slots

ExpressCard Slot	The ExpressCard slot that can accommodate two standard module formats; an ExpressCard/34 module and an ExpressCard/54 module. An ExpressCard module is a small add-in card technology based on the PCI Express and Universal Serial Bus (USB) interfaces.
Bridge Media Card Slot	Supports SD/miniSD/microSD/SDHC memory card, MMC, MEMORY STICK, MEMORY STICK PRO, MEMORY STICK PRO DUO and xD Picture card.

Multimedia

Web Camera	Record/Send still or video images with this integrated webcam. (provided with some models)
Sound System	A Windows® Sound System that provides speakers as well as jacks for an external microphone and headphones. Special harman/kardon sound system (depending on the model you purchased).
Headphone (S/P DIF) jack	This jack outputs analog audio signals. This jack can be used also as S/P DIF jack and enables connection of optical digital correspondence apparatus.
Microphone Jack	A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.
SIM Card Slot	This slot (located underneath the battery pack) allows you to transfer information from a standard 25mm Subscriber identity Module (SIM) card to your computer. The SIM card slot is only featured on some models.

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Communications

Modem	Provides capability for data and fax communication. It supports V.90 (V.92). The speed of data transfer and fax communication depends on the analog telephone line conditions. The computer has a modem jack for connection to a telephone line. Both V.90 and V.92 are supported only in the USA, Canada, France and Germany. V.90 is available in other regions. Some models are equipped with the integrated modem.
LAN	The computer has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T). It is pre-installed as a standard device in some markets.
Wireless LAN	Some computers in this series are equipped with a Wireless LAN module that is compatible with other LAN systems based on Direct Sequence Spread Spectrum/Orthogonal Frequency Division Multiplexing radio technology that complies with the IEEE 802.11 standard.

The transmission speed over the wireless LAN, and the distance over which the wireless LAN can reach, may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, client design and software/hardware configurations. The transmission rate described is the theoretical maximum speed as specified under the appropriate - the actual transmission speed will be lower than the theoretical maximum speed.

Bluetooth	Some computers in this series are equipped with Bluetooth functions. Bluetooth wireless technology eliminates the need for cables between electronic devices such as computers and printers. Bluetooth provides fast, reliable, and secure wireless communication in a small space. (Provided with some models)
Wireless Communication Switch	This switch turns the Wireless LAN and Bluetooth function on and off.

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Security

Security lock slot	Connects an optional security lock to anchor the computer to a desk or other large object.
Password	■ Power-on password protection ■ Two level password architecture ■ HDD password protection ■ Fingerprint authentication (not available on all models)

Special features

The following features are either unique to TOSHIBA computers or are advanced features, which make the computer more convenient to use.

Hot Keys	Key combinations let you quickly modify the system configuration directly from the keyboard without running a system configuration program.
Keypad Overlay	A ten-key pad is integrated into the keyboard. Refer to the *Keypad overlay* section in Chapter 5, *The Keyboard*, for instructions on using the keypad overlay.
Instant Security	The hot key function Fn + F1 blanks the screen and disables the computer, providing data security.
Display Automatic Power Off *1	This feature automatically cuts off power to the internal display when there is no keyboard input for a specified time. Power is restored when any key is pressed. This can be specified in the Power Options.
HDD Automatic Power Off *1	This feature automatically cuts off power to the hard disc drive when it is not accessed for a specified time. Power is restored when the hard disc is accessed. This can be specified in the Power Options.
System Automatic Sleep Mode/ Hibernation*1	This feature automatically shuts down the system into Sleep Mode or Hibernation Mode when there is no input or hardware access for a specified time. This can be specified in the Power Options.

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Intelligent Power Supply *1	A microprocessor in the computer's intelligent power supply detects the battery's charge and calculates the remaining battery capacity. It also protects electronic components from abnormal conditions, such as voltage overload from an AC adaptor. This can be specified in the Power Options.
Battery Save Mode *1	This feature lets you save battery power. This can be specified in the Power Options.
Panel Power On/Off *1	This feature turns power to the computer off when the display panel is closed and turns it back on when the panel is opened. This can be specified in the Power Options.
Low Battery Automatic Hibernation*1	When battery power is exhausted to the point that computer operation cannot be continued, the system automatically enters Hibernation Mode and shuts down. This can be specified in the Power Options.
TOSHIBA HDD Protection	This feature uses the acceleration sensor built in the computer to detect vibration and shocks, and automatically moves the hard disk drive's read/write head to a safe position in order to reduce the risk of damage that could be caused by head-to-disk contact. Refer to the *Using the Hard Disk Drive (HDD) Protection* section in Chapter 4, *Operating Basics*, for details.

- *The TOSHIBA HDD Protection function does not guarantee that the hard disk drive will not be damaged.*
- *TOSHIBA HDD Protection cannot be used in models that are equipped with SSD.*

Optical Drive Auto Lock (Provided with some models)	This function automatically locks the optical disc drive eject button if the computer detects any vibration or other shocks while running on the battery. This function prevents the disc tray from opening even if the eject button is pushed unexpectedly. For information on using this feature, please refer to the Optical Drive Auto Lock section in Chapter 4, *Operating Basics*.

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Hibernation	This feature allows you to turn off the power without exiting from your software. The contents of main memory are saved to the hard disk, when you turn on the power again, you can continue working right where you left off. Refer to the *Turning off the power* section in Chapter 3, *Getting Started*, for details
Sleep Mode	If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.

*1 Click , ***Control Panel*** -> ***Hardware and Sounds*** -> ***Power Options***.

USB Sleep and Charge function	This feature allows you to charge USB-compatible external devices such as mobile phones or portable digital music players via the USB port when your computer is in Sleep Mode, Hibernation Mode, or in the shutdown state. This function is worked by the USB Sleep and Charge Utility. For more information, please refer to *USB Sleep and Charge function* in Chapter 4, *Operating Basics*.
USB Wakeup function	This function restores the computer from Sleep Mode depending on the external devices connected to the USB ports. For example, if a mouse or USB keyboard is connected to a USB port, moving the mouse/ keyboard will wake up the computer. The "USB Wakeup function" operates under Windows® 7 operating system and it works for all USB ports.
TOSHIBA PC Health Monitor	The TOSHIBA PC Health Monitor software program monitors computer system functions such as power consumption, the cooling system and HDD/SSD Alert. It alerts users of specific system conditions via pop-up messages. It also tracks the usage of the computer and related devices, logging the service relevant informationon the computer's hard disk drive. Refer to Appendix E, *Starting the TOSHIBA PC Health Monitor*.

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TOSHIBA Value Added Package

This section describes the TOSHIBA Component features pre-installed on the computer.

TOSHIBA Zooming Utility	This utility allows you to enlarge or reduce the icon size on the Windows Desktop, or the zoom factor associated with specific supported applications.
TOSHIBA PC Diagnostic Tool	The TOSHIBA PC Diagnostic Tool will display basic system configuration information and allow the functionality of some of the computer's built-in hardware devices to be tested.
TOSHIBA Flash Cards	This utility supports the following functions. ■ Hot key function ■ TOSHIBA utility launcher function
TOSHIBA Components Common Driver	TOSHIBA Components Common Driver contains the module required for the utility which TOSHIBA offers.
TOSHIBA Accessibility	The TOSHIBA Accessibility utility provides support to movement impaired users when they need to use the TOSHIBA Hot-key functions. In use, the utility allows you to make the **Fn** key 'sticky', that is you can press it once, release it, and then press one of the "**F**" keys in order to access its specific function. When set, the **Fn** key will remain active until another key is pressed.
TOSHIBA Button Support	The computer includes the following buttons: ■ Eco button ■ CD/DVD button ■ Mute button The starting application from the button can be changed.

Utilities and Applications

This section describes pre-installed utilities and tells how to start them. For details on operations, refer to each utility's online manual, help files or readme.txt files.

TOSHIBA Assist	TOSHIBA Assist is a graphical user interface that provides easy access to help and services.

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HW Setup	This program lets you customize your hardware settings according to the way you work with your computer and the peripherals you use. To start the utility, double click the **TOSHIBA Assist** on your desktop, select **OPTIMIZE** tab, and click **TOSHIBA Hardware Settings**.
Power On Password	Two levels of password security, supervisor and user, are available to prevent unauthorized access to your computer. To register a supervisor password, double click the **TOSHIBA Assist** on your desktop select the **SECURE** tab and start the **Supervisor password** utility. To set a user password, select the **SECURE** tab on **TOSHIBA Assist**, then start the **User password** utility. On the **Password** tab you can register a user password.
TOSHIBA DVD PLAYER	The DVD PLAYER is used to play DVD Video. It has an on-screen interface and function.

Frame dropping, audio skipping or out of synch audio and video may occur during playback of some DVD Video titles. Make sure to connect the computer's AC adaptor when playing a DVD Video. Power-saving features may interfere with smooth playback.

Fingerprint Utility	Depending on the model purchased there is installed a fingeprint utility for the purpose of enrolling and recognizing fingerprints which can then be linked to a username and password in order to remove the need to input these details from the keyboard. Just by swiping an enrolled finger against the fingerprint sensor, the following functions will be enabled: ■ Logon to Windows and access a security enabled homepage through Internet Explorer. ■ Files and folders can be encrypted decrypted and third party access to them is prevented. ■ Disable the password-protected screen-saver when returning from a power-saving mode such as Sleep Mode. ■ Authentication of the User Password (and, if applicable, the HDD(Hard Disk Drive) Password) when booting up the computer (Power-on Security). ■ Single Sign-on feature

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- *Fingerprint security cannot be used in models that do not have a fingerprint module installed.*
- *The HDD (Hard Disk Drive) Password can be registered in the BIOS Setup. If you forget your HDD Password, TOSHIBA will NOT be able to assist you, and your HDD will be rendered COMPLETELY and PERMANENTLY INOPERABLE. TOSHIBA will NOT be held responsible for any loss of any data, any loss of use or access to your HDD, or for any other losses to you or any other person or organization that result from the loss of access to your HDD. If you can't accept this risk, don't register the HDD Password.*

TOSHIBA Face Recognition	TOSHIBA Face Recognition uses a face verification library to verify the face data of users when they log in to Windows. If the verification is successful, the user will be logged into Windows automatically. The user can thus avoid having to enter a password or the like, which makes the login process easier.
Bluetooth Stack for Windows® by Toshiba	This software enables communication between the computer and external Bluetooth devices such as printers and mobile phones.

Bluetooth functions cannot be used in models that do not have a Bluetooth module installed.

TOSHIBA Disc Creator	You can create CD/DVDs in several formats including audio CDs that can be played on a standard stereo CD player and data CDs or DVDs to store multimedia and/or document files on your hard disk drive. This software can be used on a model with the CD-RW/DVD-ROM drive, DVD-R/-RW drive, DVD±R/±RW drive and DVD Super Multi Double Layer drive. To run TOSHIBA Disc Creator, click then select **All Programs**, **TOSHIBA**, **CD&DVD Applications**, and then click **Disc Creator**.
TOSHIBA ConfigFree	ConfigFree is a suite of utilities to allow easy control of communication device and network connections. ConfigFree also allows you to find communication problems and create profiles for easy switching between location and communication networks. To run ConfigFree, click , select **All Programs**, **TOSHIBA** and then click **ConfigFree**.

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Windows Mobility Center	This section describes the Windows Mobility Center. Mobility Center is a utility for accessing several mobile PC settings quickly in one window. A maximum of eight tiles are prepared as the operating system default. Two additional tiles are also added to your Mobility Center. Installing the "TOSHIBA Extended Tiles for Windows Mobility Center" package will add the following functions. ■ **Lock Computer**: Lock your computer without turning it off. ■ **TOSHIBA Assist**: Open the TOSHIBA Assist if it is already installed in your computer.
TOSHIBA USB Sleep and Charge Utility	This utility is able to either enable or disable the USB Sleep and Charge function. This utility shows the positions of USB ports that support the USB Sleep and Charge function and displays the battery's remaining capacity. To start this utility, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **USB Sleep and Charge**.
TOSHIBA HDD/SSD Alert	The TOSHIBA HDD/SSD Alert includes wizard functions to monitor the Disk Drive operating status and execute the system backup.
TOSHIBA eco Utility	TOSHIBA eco Utility helps you monitor your power savings by showing approximate real time power consumption. Furthermore, it shows approximate accumulated power consumption and approximate accumulated power savings when using eco mode daily, weekly, and monthly. You can track power savings by using eco mode continuously.

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Options

You can add a number of options to make your computer even more powerful and convenient to use. Refer to Chapter 8, *Optional Devices*, for details. The following options are available:

Memory expansion	A 1GB, 2GB, or 4GB memory module can be installed in the memory slot for a maximum of 8GB system memory.

Depending on the model purchased you need to use either PC8500 compatible DDRIII memory modules or PC6400* compatible DDRII memory modules.*

Contact your TOSHIBA dealer for details.

Battery pack	An additional battery pack can be purchased from your TOSHIBA dealer. Use it as a spare to increase your computer operating time.
AC Adaptor	If you use your computer at more than one site frequently, it may be convenient to purchase an additional AC adaptor for each site so you will not have to carry the adaptor with you.

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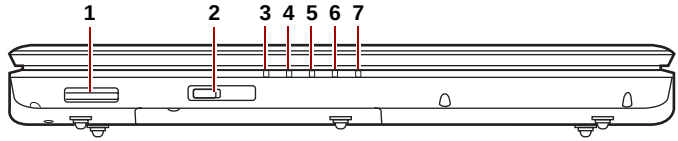
Chapter 2

The Grand Tour

This chapter identifies the various components of your computer. Become familiar with each component before you operate the computer.

Front with the display closed

The following figure shows the computer's front with its display panel in the closed position.



1. Multiple Digital Media Card Slot
2. Wireless Communication Switch
3. DC IN LED
4. Power LED
5. Battery LED
6. Bridge Media Slot LED
7. HDD/ODD/eSATA LED

Figure 2-1 Front of the computer with display closed

1 Multiple Digital Media Card Slot

Supports SD/SDHC memory card, MMC, MEMORY STICK, MEMORY STICK PRO and xD Picture card

2 Wireless Communication Switch

Slide this switch to the right of the computer to turn on the wireless communication. Slide it to the left to turn off the functions.

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- *Turn Wi-Fi and Bluetooth functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.*
- *Do not use the Wi-Fi or Bluetooth functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi or Bluetooth operation.*

3 DC IN LED

The DC IN LED indicates the computer is connected to the AC adaptor and it is plugged into an AC power source.

4 Power LED

The Power indicator glows white when the computer is on. If you select Sleep Mode from Turn Off Computer, this indicator flashes orange (one second on, two seconds off) while the computer enters Sleep Mode.

5 Battery LED

The Battery indicator shows the condition of the battery's charge: White indicates a full charge, orange indicates that the battery is charging and flashing orange indicates a low battery charge. Refer to Chapter 6, *Power and Power-Up Modes*.

6 Bridge Media Slot LED

Multiple Digital Media Card Slot LED lights up when the Multiple Digital Media Card Slot is accessed.

(Provided with some models)

7 HDD/ODD/eSATA LED

The HDD/ODD/eSATA indicator glows while the computer is accessing a hard disk drive, optical disk drive, or eSATA-equipped device.

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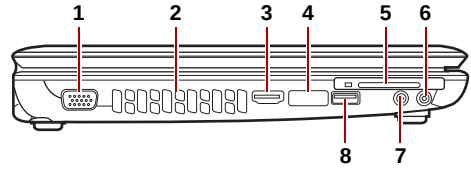
Left side

The following figure shows the computer's left side.



1. External Monitor Port*
2. Cooling Vents
3. HDMI*
4. eSATA and USB Combo Port
5. ExpressCard Slot
6. Headphone (S/P DIF) Jack
7. Microphone Jack
8. Universal Serial Bus (USB 2.0) port

* Provided with some models.

Figure 2-2 The left side of the computer

1 External Monitor Port

This 15-pin port lets you connect an external video display. (Provided with some models.)

2 Cooling Vents

Cooling vents help prevent the CPU from overheating.

Do not block the cooling vents. Keep foreign metal objects, such as screws, staples and paper clips, out of the cooling vents. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.

3 HDMI

A jack enables connection of the application of High Definition Multimedia Interface, such as DVD Player, LCD Monitor, LCD TV, HDTV, Settop- Box and projector.

(Provided with some models)

4 eSATA and USB Combo Port

One eSATA/Universal Serial Bus (USB) combo port complies with USB 2.0 standards, which enables data transfer speeds 40 times faster than the USB 1.1 standards.

This combo port also enables a chain connection of USB-equipped or eSATA-equipped devices to your computer through the port

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5 ExpressCard Slot

This slot allows you to insert an ExpressCard. An ExpressCard is a small, modular add-in card technology based on PCI Express and the Universal Serial Bus (USB) interface. The max. transmission rate is 2.5Gbps. ExpressCard/34 and ExpressCard/54 types are supported.

Keep foreign metal objects, such as screws, staples and paper clips, out of the ExpressCard slot. Foreign metal objects can create a short circuit, which can cause damage and fire, possibly resulting in serious injury.

6 Headphone (S/PDIF) Jack

This jack outputs analog audio signals. This jack can be used also as S/P DIF jack and enables connection of optical digital correspondence apparatus.

7 Microphone Jack

A 3.5 mm mini microphone jack enables connection of a three-conductor mini jack for monaural microphone input.

8 Universal Serial Bus (USB 2.0) port

One Universal Serial Bus (USB) port complies with USB 2.0 standards.

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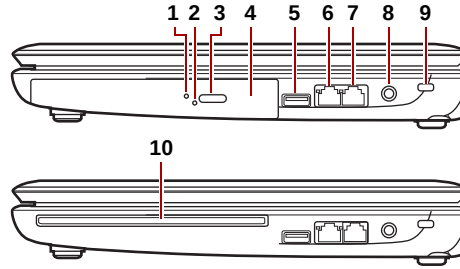
Right side

The following figure shows the computer's right side.



1. ODD Indicator
2. Emergency Eject Hole
3. Eject Button
4. Optical Disk Drive
5. Universal Serial Bus (USB 2.0) port
6. LAN Jack
7. Modem Jack*
8. DC IN Jack
9. Security Lock
10. Slot-Loading ODD*

* Provided with some models.

Figure 2-3 The right side of the computer

1 ODD Indicator

The ODD indicator glows amber when the computer accesses the optical disc drive.

2 Emergency Eject Hole

In the event that the disc drive becomes inexplicably locked or stops responding press this button to force a manual ejection of the ODD tray.

3 Eject Button

Press this button to open the ODD tray.

4 Optical Disc Drive (ODD)

The computer is configured with a DVD Super Multi (±R DL). Some models are equipped with an optical disc drive.

5 Universal Serial Bus (USB 2.0) port

The Universal Serial Bus (USB) port complies with USB 2.0 standards, which enables data transfer speeds 40 times faster than the USB 1.1 standards.

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6 LAN Jack

This jack lets you connect to a LAN. The adaptor has built-in support for Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T). The LAN has two indicators. Refer to Chapter 4, *Operating Basics*, for details.

- *Do not connect any cable other than a LAN cable to the LAN jack. It could cause damage or malfunction.*
- *Do not connect the LAN cable to a power supply. It could cause damage or malfunction.*

7 Modem Jack

The modem jack allows you to use a modular cable to connect the modem directly to a telephone line. (Provided with some models)

- *Connection to any communication line other than an analog phone could cause a computer system failure.*
  - *Connect the built-in modem only to ordinary analog phone lines.*
  - *Never connect the built-in modem to a digital line (ISDN).*
  - *Never ever connect the built-in modem to the digital connector on a public telephone or to a digital private branch exchange (PBX).*
  - *Never connect the built-in modem to a key telephone system for residences or offices.*
- *Avoid using your computer modem with the telephone cable connected during an electrical storm. There may be a remote risk of electric shock from lightning.*

DC IN 19V

8 DC IN Jack

The AC adaptor connects to this socket. Use only the model of AC adaptor that comes with the computer. Using the wrong adaptor can damage your computer.

9 Security Lock

A security cable attaches to this port. The optional security cable anchors your computer to a desk or other large object to deter theft.

10 Slot-Loading ODD

Insert your CD/DVD into this slot.

(Provided with some models)

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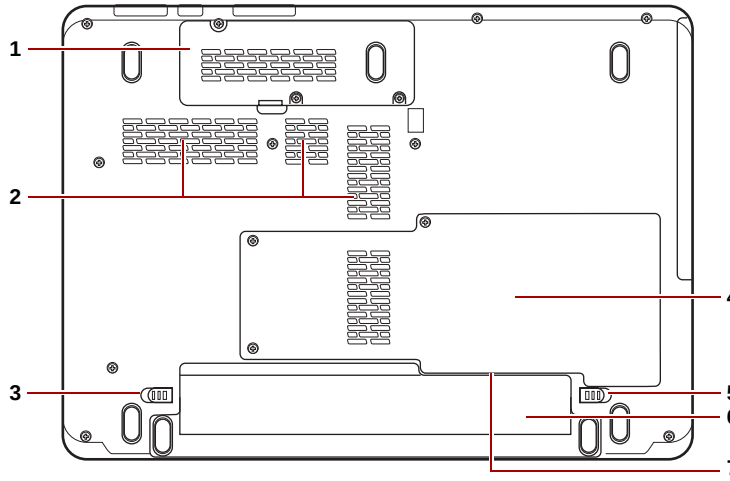
Underside

The following figure shows the underside of the computer. Make sure the display is closed before turning over your computer.



1. Wireless LAN Module cover
2. Cooling Vents
3. Battery Release Latch
4. HDD/Memory Module cover
5. Battery Pack Lock
6. Battery Pack
7. SIM card slot* (Under the battery pack)

Figure 2-4 The underside of the computer

1 Wireless LAN Module Cover

This cover protects the Wireless LAN module.

2 Cooling Vents

Cooling vents help prevent the CPU from overheating.

3 Battery Release Latch

Slide and hold this latch to release the battery pack for removal. For detailed information on removing the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

4 Hard Disk and Memory Module Cover

This cover protects the hard disk and the memory module. Refer to the *Memory expansion* section in Chapter 8, *Optional Devices*.

5 Battery Pack Lock

Slide this lock to prepare the battery pack for removal.

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6	**Battery Pack** The battery pack powers the computer when the AC adaptor is not connected. For detailed information on the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.
7	**SIM card slot** Located under the battery pack, the SIM card slot allows you install a standard 25mm Subscriber Identity Module (SIM) into your computer. (Provided with some models)

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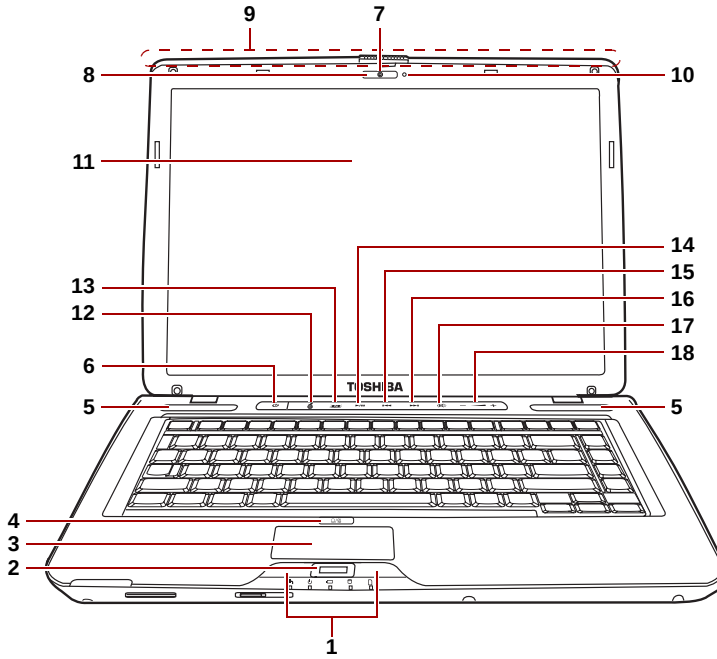
Front with the display open

This section shows the front of the computer with the display open. Refer to the appropriate illustration for details. To open the display, lift the front of the display. Position the display at a comfortable viewing angle.



1. TouchPad Control Buttons
2. Fingerprint Sensor*
3. TouchPad
4. TouchPad On/Off button
5. Speakers
6. Power Button
7. Web Camera*
8. Web Camera LED*
9. Wireless Antenna* (not shown)
10. Built-in Microphone*
11. Display Screen
12. ECO Button
13. CD/DVD Button
14. Play/Pause Button
15. Previous Button
16. Next Button
17. Illumination ON-OFF or Mute
18. Volume Button

* Provided with some models.

Figure 2-5 The front of the computer with the display open

Please handle your computer carefully to avoid scratching or damaging the surface.

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1 TouchPad Control Buttons

These let you select menu items or manipulate text and graphics designated by the on-screen pointer. Refer to the *Using the TouchPad* section in Chapter 4, *Operating Basics*.

2 Fingerprint Sensor

Just by swiping the finger against the fingerprint sensor, the following functions will be enabled: Log-on to Windows and access a security-enabled homepage through IE (Internet Explorer) Files and folders can be encrypted/decrypted and third party access to them prevented. Disable the password-protected screensaver when returning from power-saving (Sleep) mode. System boot authentication and Single Touch Boot feature. Authentication of the User Password and Hard Disk Drive Password when booting up the computer. Refer to the *Using the fingerprint sensor* section in Chapter 4, *Operating Basics*.

(Provided with some models)

3 TouchPad

A TouchPad located in the centre of the palm rest is used to control the on-screen pointer.

4 TouchPad On/Off button

Turns the TouchPad ON/OFF.

5 Speakers

The speakers emit sound generated by your software as well as audio alarms, such as low battery condition, generated by the system.

6 Power Button

Turns the computer on and off and puts it into Hibernation mode and wakes it up from Sleep mode.

7 Web Camera

Takes your picture or sends your image to web contacts.

(Provided with some models)

8 Web Camera LED

Web Camera LED indicates web camera is working or not.
(Provided with some models)

9 Wireless Antenna (WLAN, 3G)

Some computers in this series are equipped with a WLAN or 3G antenna.
(Provided with some models)

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10 Built-in microphone

The Microphone is used with the Web Camera to talk to other Web Camera users and to record messages on windows media.

(Provided with some models)

11 Display Screen

The LCD displays high-contrast text and graphics. Refer to Appendix B, *Display Controller*. When the computer operates on the AC adaptor the display screen's image will be somewhat brighter than when it operates on battery power. The lower brightness level is intended to save battery power.

12 ECO Button

Press this button to change the TOSHIBA ECO utility. This button changes "On" and "Off" of ECO Mode. When ECO Mode is "On", the icon turns green. When ECO Mode is "Off", the icon turns gray.

13 CD/ DVD Button

Pressing this button will launch an application program that allows for playing of CDs or DVDs.

The application that is launched differs by model: Windows Media Player/TOSHIBA DVD PLAYER.

(Provided with some models)

14 Play/Pause Button

Press this button to begin playing an audio CD, a DVD movie or digital audio file. This button also acts as a Pause button.

(Provided with some models)

15 Previous Button

Skips backwards to the previous track, chapter or digital file. Refer to Chapter 4, *Operating Basics*, for details.

(Provided with some models)

16 Next Button

Skips forward to the next track, chapter or digital file.
Refer to Chapter 4, *Operating Basics*, for details.

(Provided with some models)

17 Illumination ON-OFF or Mute

Press this button to turn the LED backlight on or off or press this button to mute the volume. This function is depending on the model purchased.

(Provided with some models)

18 Volume Button

Press (+} to increase or (-) to decrease the volume.

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Optical Disc Drive

An ATAPI interface controller is used for optical disc operation. When the computer is accessing an optical disc, an indicator on the drive glows.

Region codes for DVD drive and media

Optical disc drive and their associated media are manufactured according to the specifications of six marketing regions. When you purchase DVDVideo, make sure it matches your drive, otherwise it will not play properly.

Code	Region
1	Canada, United States
2	Japan, Europe, South Africa, Middle East
3	Southeast Asia, East Asia
4	Australia, New Zealand, Pacific Islands, Central America, South America, Caribbean
5	Russia, Indian Subcontinent, Africa, North Korea, Mongolia
6	China

Writable discs

This section describes the types of writable CD discs. Check the specifications of your drive for the type of discs it can write. Refer to Chapter 4, *Operating Basics*.

CDs

- CD-R discs can be written only once. The recorded data cannot be erased or changed.
- CD-RW discs can be recorded more than once. Use either 1, 2, or 4 multi speed CD-RW discs or high-speed 4- to 10-speed discs. The write speed of the ultra-speed CD-RW discs is a maximum of 24-speed.

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DVD Super Multi Double Layer drive

The full-size DVD Super Multi (±R DL) drive module lets you record data to rewritable CD/DVDs as well as run either 12 cm (4.72") or 8cm (3.15") CD/DVDs at Tray ODD and 12 cm (4.72") CD/DVDs at slot ODD without using an adaptor.

The read speed is slower at the center of a disc and faster at the outer edge.

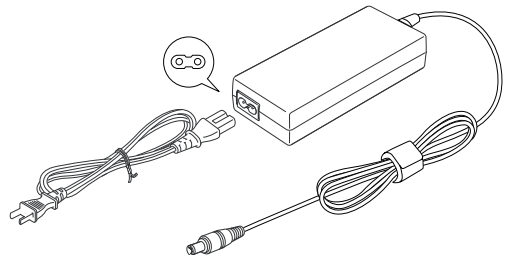
DVD read	8 speed (maximum)
DVD-R write	8 speed (maximum)
DVD-R DL write	4 speed (maximum)
DVD-RW write	6 speed (maximum)
DVD+R write	8 speed (maximum)
DVD+R DL write	4 speed (maximum)
DVD+RW write	8 speed (maximum)
DVD-RAM write	5 speed (maximum)
CD read	24 speed (maximum)
CD-R write	24 speed (maximum)
CD-RW write	16 speed (maximum, high-speed media)

Use only round standard (12 cm) discs with this slot-loading optical drive. Any other size or shape disc may not be able to be removed from the slot and may damage the system as well as the disc.

AC adaptor

The AC adaptor converts AC power to DC power and reduces the voltage supplied to the computer. It can automatically adjust to any voltage from 100 to 240 volts and to a frequency of either 50 or 60 hertz, enabling you to use the computer in almost any country/region.

To recharge the battery, simply connect the AC adaptor to a power source and the computer. Refer to Chapter 6, *Power and Power-Up Modes*, for details.



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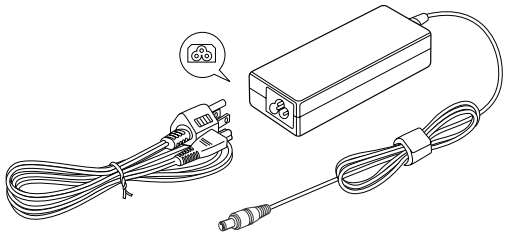

Figure 2-6 The AC adaptor

- *Depending on the model in question, either a 2-pin or 3-pin adaptor/ power lead will be bundled with the computer.*
- *Do not use a 3-pin to 2-pin conversion plug.*
- *The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside of this region. In order to use the adaptor/computer in other regions, you should please buy a power cord that conforms to the safety rules and regulations in that particular region.*

Always use the TOSHIBA AC adaptor that was included with your computer, or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.

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Chapter 3

Getting Started

This chapter provides basic information to get you started using your computer. It covers the following topics:

- *All users should be sure to read the section Starting up for the first time.*
- *Be sure to read the enclosed Instruction Manual for Safety and Comfort for information on the safe and proper use of this computer. It is intended to help you be more comfortable and productive while using a notebook computer. By following the recommendations in it you may reduce your chance of developing a painful or disabling injury to your hand, arms, shoulders or neck.*

- Connecting the AC adaptor
- Opening the display
- Turning on the power
- Windows® 7 setup
- Turning off the power
- Restarting the computer
- System Recovery Options
- System Recovery Options and Restoring the pre-installed software

- *Use a virus-check program and make sure it is updated regularly.*
- *Never format storage media without checking its content - formatting destroys all stored data.*
- *It is a good idea to periodically back up the internal hard disk drive or other main storage device to external media. General storage media is not durable or stable over long periods of time and under certain conditions may result in data loss.*
- *Before you install a device or application, save any data in memory to the hard disk drive or other storage media. Failure to do so may result in the loss of data.*

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Connecting the AC adaptor

Attach the AC adaptor when you need to charge the battery or you want to operate from AC power. It is also the fastest way to get started, because the battery pack will need to be charged before you can operate from battery power.

The AC adaptor can be connected to any power source supplying from 100 to 240 volts and 50 or 60 hertz. For details on using the AC adaptor to charge the battery pack, refer to Chapter 6, *Power and Power-Up Modes*.

- *Always use the TOSHIBA AC adaptor that was included with your computer or use AC adaptors specified by TOSHIBA to avoid any risk of fire or other damage to the computer. Use of an incompatible AC adaptor could cause fire or damage to the computer possibly resulting in serious injury. TOSHIBA assumes no liability for any damage caused by use of an incompatible adaptor.*
- *Never plug the AC adaptor into a power source that does not correspond to both the voltage and the frequency specified on the regulatory label of the unit. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *Always use or purchase power cables that comply with the legal voltage and frequency specifications and requirements in the country of use. Failure to do so could result in a fire or electric shock, possibly resulting in serious injury.*
- *The supplied power cord conforms to safety rules and regulations in the region the product is bought and should not be used outside this region. For use in other regions, please buy power cords that conform to safety rules and regulations in the particular region.*
- *Do not use a 3-pin to 2-pin conversion plug.*
- *When you connect the AC adaptor to the computer, always follow the steps in the exact order as described in the User's Manual. Connecting the power cable to a live electrical outlet should be the last step otherwise the adaptor DC output plug could hold an electrical charge and cause an electrical shock or minor bodily injury when touched. As a general safety precaution, avoid touching any metal parts.*
- *Never place your computer or AC adaptor on a wooden surface, furniture, or any other surface that could be marred by exposure to heat since the computer base and AC adaptor's surface increase in temperature during normal use.*
- *Always place your computer or AC adaptor on a flat and hard surface that is resistant to heat damage.Refer to the enclosed Instruction Manual for Safety and Comfort for detailed precautions and handling instructions.*

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1. Connect the power cord to the AC adaptor.

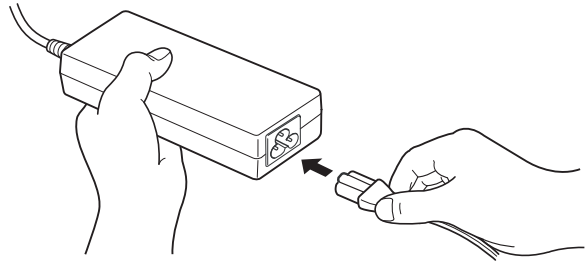

Figure 3-1 Connecting the power cord to the AC adaptor

Enter a 2-pin or 3-pin adaptor/cord will be included with the computer depending on the model.

2. Connect the AC adaptor's DC output plug to the DC IN 19V jack on the right side of the computer.

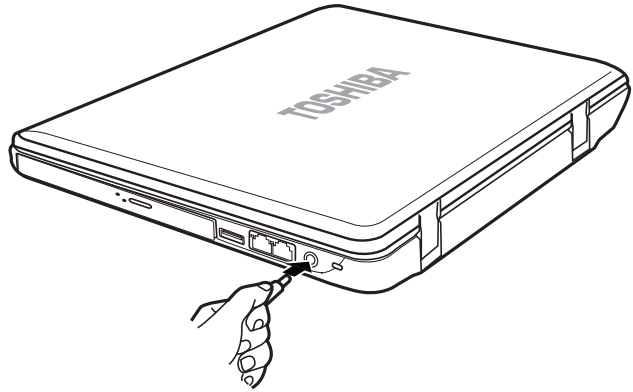

Figure 3-2 Connecting the adaptor to the computer

3. Plug the power cord into a live wall outlet.

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Opening the display

The display panel can be rotated in a wide range of angles for optimal viewing.

Lift the panel up and adjust it to the best viewing angle for you.

Use reasonable care when opening and closing the display panel. Opening it vigorously or slamming it shut could damage the computer.

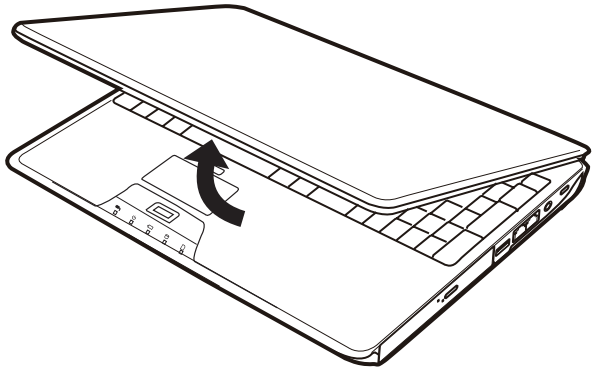

Figure 3-3 Opening the display

- *When opening the panel, please be careful not to force it beyond the point where it moves easily.*
- *Be careful not to open the display panel too far as this could put stress on the display panel's hinges and cause damage.*
- *Do not press or push on the display panel.*
- *Do not lift the computer by the display panel.*
- *Do not close the display panel with pens or any other objects left in between the display panel and the keyboard.*
- *When opening or closing the display panel, place one hand on the palm rest to hold the computer in place and use the other hand to slowly open or close the display panel (Do not use excessive force when opening or closing the display panel).*

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Turning on the power

This section describes how to turn on the power.

After you turn on the power for the first time, do not turn it off until you have set up the operating system. Refer to the section Windows® 7 setup.

Press and hold the computer's power button for two or three seconds.

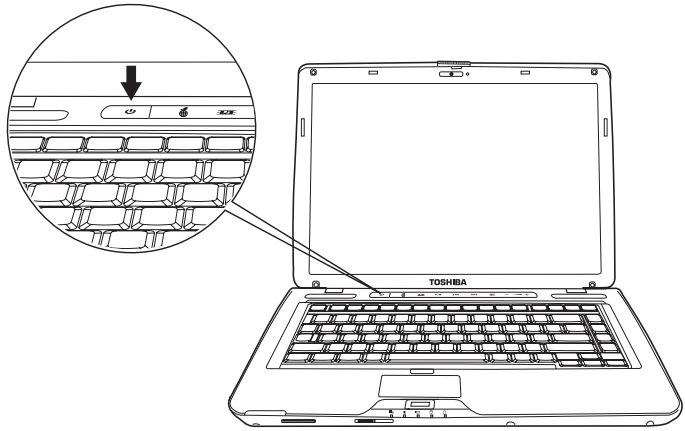

Figure 3-4 Turning on the power

Windows® 7 setup

When you first turn on the power, the computer's initial screen is the Windows® 7 Startup Screen Logo.

Follow the on-screen directions.

Be sure to read the **Windows End User License Agreement** *display carefully.*

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Turning off the power

The power can be turned off in one of the following modes: Shut down (Boot), Hibernation or Sleep Mode.

Shut Down mode (Boot mode)

When you turn off the power in Shut Down mode no data is saved and the computer will boot to the operating system's main screen.

1. If you have entered data, save it to the hard disk.
2. Make sure all disk (disc) activity has stopped, then remove the CD/DVDs.

*Make sure the **Disk LED** indicator is off. If you turn off the power while a disk (disc) is being accessed, you can lose data or damage the disk (disc).*

3. Click then click the Shut down button (Shut down) located in the Start Menu to turn off your system.
4. Turn off the power to any peripheral devices.

Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.

Sleep Mode

If you have to interrupt your work, you can turn off the power without exiting from your software. Data is maintained in the computer's main memory. When you turn on the power again, you can continue working right where you left off.

When you have to turn off your computer aboard an aircraft or in places where electronic devices are regulated or controlled, always completely shut down the computer. This includes turning off any wireless communication switches or devices, and canceling settings that reactivate the computer automatically, such as a timer recording function. Failure to completely shut down the computer in this way could allow the operating system to reactivate and run pre-programmed tasks or preserve unsaved data, which could interfere with aviation or other systems, possibly causing serious injury.

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- *When the AC adaptor is connected, the computer will go into Sleep Mode according to the settings in the Power Options.*
- *To restore operation from Sleep Mode, press the power button or press any key. The latter action works only if Wake-up on Keyboard is enabled in HW Setup.*
- *If the computer automatically enters Sleep Mode while a network application is active, the application might not be restored when the computer wakes up from Sleep Mode.*
- *To prevent the computer from automatically entering Sleep Mode, disable Sleep Mode in the Power Options. That action, however, will nullify the computer's Energy Star compliance.*

- *Before entering Sleep Mode, be sure to save your data.*
- *Do not install or remove a memory module while the computer is in Sleep Mode. The computer or the module could be damaged.*
- *Do not remove the battery pack while the computer is in Sleep Mode (unless the computer is connected to an AC power source). Data in memory will be lost.*

Benefits of Sleep Mode

The Sleep Mode feature provides the following benefits:

- Restores the previous working environment more rapidly than does Hibernation Mode.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System Sleep Mode feature.
- You can use the panel power off feature.

Entering Sleep Mode

You can enter Sleep Mode in one of three ways:

- Click ( ) then click the arrow button ( ) located in the power management button (Shut down). From the menu, choose Sleep. Please note that this feature must be enabled within Power Options ( ) to access it, click **Control Panel** -> **System and Security** -> **Power Options**.

When you turn the power back on, you can continue where you left when you shut down the computer.

*You can also enable Sleep Mode by pressing **Fn + F3**. Refer to Chapter 5, The Keyboard, for details.*

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- *When the computer is shut down in Sleep Mode, the power indicator flashes orange.*
- *If you are operating the computer on battery power, you can lengthen the operating time by turning it off into Hibernation Mode, as Sleep Mode consumes more power.*

Sleep Mode limitations

Sleep Mode will not function under the following conditions:

- Power is turned back on immediately after shutting down.
- Memory circuits are exposed to static electricity or electrical noise.

Hibernation Mode

The hibernation feature saves the contents of memory to the hard disk when the computer is turned off. The next time the computer is turned on, the previous state is restored. The hibernation feature does not save the status of peripheral devices.

- *Save your data. While entering Hibernation Mode, the computer saves the contents of memory to the HDD. However, for safety sake, it is best to save your data manually.*
- *Data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the disk indicator to go out.*
- *Do not install or remove a memory module while the computer is in Hibernation Mode. Data will be lost.*

Benefits of Hibernation Mode

The Hibernation Mode feature provides the following benefits:

- Saves data to the hard disk when the computer automatically shuts down because of a low battery.
- You can return to your previous working environment immediately when you turn on the computer.
- Saves power by shutting down the system when the computer receives no input or hardware access for the duration set by the System hibernate feature.
- You can use the panel power off feature.

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Starting Hibernation Mode

*You can also enable Hibernation Mode by pressing **Fn + F4**. Refer to Chapter 5, The Keyboard, for details.*

To enter Hibernation Mode, follow the steps below.

1. Click .
2. Click the arrow icon ( ) located in the power management button (Shut down).
3. From the pull down menu, select **Hibernate**.

Automatic Hibernation Mode

The computer will enter Hibernation mode automatically when you press the power button or close the Display Screen. First, however, make the appropriate settings according to the steps below.

1. Open the **Control Panel**.
2. Open **System and Security** and open **Power Options**.
3. Select the **Choose what the power button** in the menu in the left.
4. Enable the desired Hibernation settings for **When I press the power button** and **When I close the lid**.
5. Click the **Save changes** button.

Data saving in Hibernation Mode

When you turn off the power in Hibernation Mode, the computer takes a moment to save current memory data to the hard disk. During this time, the disk indicator will light.

After you turn off the computer and memory is saved to the hard disk, turn off the power to any peripheral devices.

Do not turn the computer or devices back on immediately. Wait a moment to let all capacitors fully discharge.

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Restarting the computer

Certain conditions require that you reset the system. For example, if:

- You change certain computer settings.
- An error occurs and the computer does not respond to your keyboard commands.
- There are three ways to reset the computer system:

1. Click ( ) then click the arrow button ( ) located in the power management button ( ), and select **Restart** from menu.
2. Press **Ctrl + Alt + Del** to display the menu window, then select **Restart** from the **Shut down** options.
3. Press the power button and hold it down for five seconds. Once the computer has turned itself off, wait between ten and fifteen seconds before turning it on again with the power button.

System Recovery Options and restoring the pre-installed software

About 1.5GB hidden partition is allocated on the hard drive for the System Recovery Options.

The System Recovery Options feature will be unusable if this partition is deleted.

System Recovery Options

The System Recovery Options feature is installed on the hard disk when shipped from the factory. The System Recovery Options menu includes some tools to repair startup problems, run diagnostics or restore the system.

You can see the more information about “Startup Repair” in “Windows Help and Support” content.

The System Recovery Options can also be run manually to repair problems.

The procedure is as follows. Follow the instructions shown on the onscreen menu.

1. Turn off the computer.
2. While holding the **F8** key, turn the computer on.
3. The **Advanced Boot Options** menu will be displayed.

   Use the arrow keys to select **Repair Your Computer** and press **Enter**.
4. Follow the on-screen instructions.

Check your Windows® manual for more information on backing up your system (including the system image backup feature).

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Restoring the pre-installed Software

Depending on the model you purchased, different ways for restoring the pre-installed software are offered:

- Creating optical Recovery Discs and restoring the pre-installed software from them
- Restoring the pre-installed software from the Recovery hard disk drive
- Ordering Recovery Discs from TOSHIBA and restoring the pre-installed software from them*

** Please note that this service is not free-of-charge.*

Creating Optical Recovery Discs

This section describes how to create Recovery Discs.

- *Be sure to connect the AC adaptor when you create Recovery Discs.*
- *Be sure to close all other software programs except the Recovery Media Creator.*
- *Do not run software such as screen savers which can put a heavy load on the CPU.*
- *Operate the computer at full power.*
- *Do not use power-saving features.*
- *Do not write to the disc when the virus check software is running. Wait for it to finish, then disable virus detection programs including any software that checks files automatically in the background.*
- *Do not use utilities, including those intended to enhance hard disk drive access speed. They may cause unstable operation and damage data.*
- *Do not shut down/log off or Sleep/Hibernate while writing or rewriting the disc.*
- *Set the computer on a level surface and avoid places subjected to vibrations such as airplanes, trains or cars.*
- *Do not place your computer on unstable tables or any other unstable surfaces.*

A recovery image of the software on your computer is stored on the hard disk drive, and can be copied to DVD media by using the following steps:

1. Have a blank DVD media ready.
2. The application will allow you to choose from a variety of different media onto which the recovery image can be copied including DVD-R, DVD-RW, DVD+R, DVD+RW.

Please note that some of the above media may not be compatible with the optical disc drive installed into your computer. You should therefore verify the optical disc drive supports the blank media you have chosen before proceeding.

3. Turn on your computer and allow it to load the Windows® 7 operating system from the hard disk drive as normal.

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4. Insert the first blank media into the optical disc drive tray.
5. Double click the **Recovery Media Creator** icon on the Windows® 7 desktop, or select the application from **Start** Menu.
6. After Recovery Media Creator starts, select the type of media and the title you wish to copy, and then click the **Create** button.
7. Follow the on-screen instructions.

Your Recovery Discs will be created.

Restoring the pre-installed software from your created Recovery Discs

If the pre-installed files are damaged, you are able to use the Recovery Discs you have created to restore the computer to the state it was in when you originally received it. To perform this restoration, follow the steps below:

When the sound mute feature has been activated by pressing the **Fn** + **ESC** *key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, The Keyboard, for further details.*

When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.

1. Load the Recovery Discs into the optical disc drive and turn off the computer's power.
2. While holding down **F12** key on the keyboard, turn on your computer - when the **TOSHIBA** logo screen appears, release the **F12** key.
3. Use the cursors key to select the CD-ROM icon from the menu. Please refer to the *Boot Priority* section in Chapter 7, *HW Setup*, for further information.
4. A menu will be displayed from which you should follow the on-screen instructions.

Restoring the pre-installed software from the Recovery hard disk drive

On your Data drive you may find a folder "HDDRecovery". This folder stores files which can be used to recover your system to the originally installed factory state.

If you subsequently set up your hard disk drive again, do not change, delete or add partitions in a manner other than specified in the manual, otherwise you may find that space for the required software is not available.

In addition, if you use a third-party partitioning program to reconfigure the partitions on your hard disk drive, you may find that it becomes impossible to setup your computer.

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When the sound mute feature has been activated by pressing the **Fn** + **ESC** *key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, The Keyboard, for further details.*

Be sure to connect the AC adaptor, otherwise you may run out of battery during the recovery process.

When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.

1. Turn off the computer.
2. Turn on the computer and when the TOSHIBA screen appears repeatedly press the **F8** key.
3. The **Advanced Boot Options** menu will be displayed. Use the arrow keys to select **Repair Your Computer** and press **ENTER**.
4. Select your preferred keyboard layout and press **Next**.
5. To access the recovery process please log on as an enabled user with sufficent rights.
6. Click TOSHIBA HDD Recovery on the System Recovery Options screen.
7. Follow the on-screen instructions on the TOSHIBA HDD Recovery dialog.

The computer will be restored to its factory state.

Please set your BIOS to default before you recover your computer to the factory state!

Ordering Recovery Discs from TOSHIBA*

You can order Product Recovery discs for your notebook from the TOSHIBA Europe Backup Media Online Shop.

** Please note that this service is not free-of-charge.*

1. Visit https://backupmedia.toshiba.eu on the Internet.
2. Follow the on-screen instructions.

You will receive your Recovery Discs within two weeks after placing your order.

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Restoring the pre-installed software from your ordered Recovery Discs

If the pre-installed files are damaged, you are able to use the Recovery Discs you have ordered to restore the computer to the state it was in when you originally received it. To perform this restoration, follow the steps below:

When the sound mute feature has been activated by pressing the **Fn** + **ESC** *key, be sure to disable this to allow sounds to be heard before starting the restore process. Please refer to Chapter 5, The Keyboard, for further details.*

When you reinstall the Windows operating system, the hard disk will be reformatted and all data will be lost.

1. Load the Recovery Discs into the optical disc drive and turn off the computer's power.
2. While holding down **F12** key on the keyboard, turn on your computer - when the **TOSHIBA** logo screen appears, release the **F12** key.
3. Use the cursors key to select the CD-ROM icon from the menu. Please refer to the *Boot Priority* section in Chapter 7, *HW Setup*, for further information.
4. A menu will be displayed from which you should follow the on-screen instructions.

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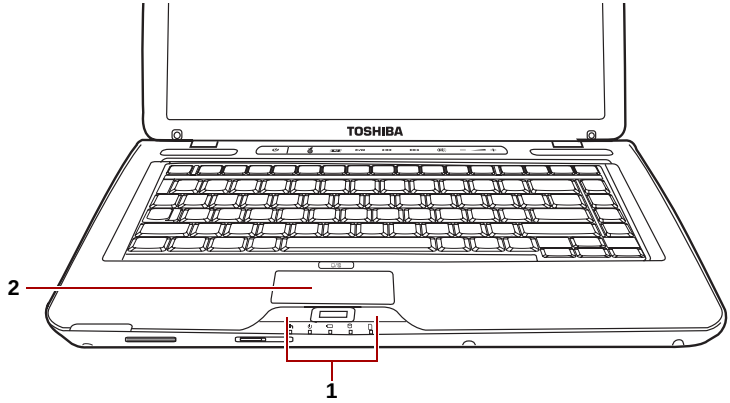
Chapter 4

Operating Basics

This chapter gives information on basic operations including using the TouchPad, optical media drives, sound system, modem, the wireless LAN and LAN. It also provides tips on caring for your computer.

Using the TouchPad

To use the TouchPad, simply touch and move your finger tip across it in the direction you want the on-screen pointer to go.



1. TouchPad Control Buttons
2. TouchPad

Figure 4-1 TouchPad and TouchPad control buttons

Two buttons below the keyboard are used like the buttons on a mouse pointer. Press the left button to select a menu item or to manipulate text or graphics designated by the pointer. Press the right button to display a menu or other function depending on the software you are using.

Do not press on the TouchPad too hard or press a sharp object such as a ball point pen against the TouchPad. The TouchPad could be damaged.

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For some functions, you can tap the TouchPad instead of pressing a control button.

Click: *Tap the TouchPad once*

Double-click: *Tap the TouchPad twice*

Drag and drop:

1. *Hold down the left control button and move the cursor to drag the item you want to move.*
2. *Lift your finger to drop the item where you want it.*

Scroll:

Vertical: Move your finger up or down the right edge of the TouchPad.

Horizontal: Move your finger left or right along the bottom edge of the TouchPad.

Using the fingerprint sensor

Depending on the model purchased there is installed a fingeprint utility for the purpose of enrolling and recognizing fingerprints. By enrolling the ID and password to the fingerprint authentication device, it is no longer necessary to input the password from the keyboard. Just by swiping the finger against the fingerprint sensor, the following functions will be enabled:

- Logon to Windows and access a security-enabled homepage through IE (Internet Explorer).
- Files and folders can be encrypted/decrypted and third party access to them prevented.
- Disable the password-protected screen-saver when returning from power-saving (Sleep) mode.
- Pre-OS feature and Single Sign-On feature.
- Authentication of the User Password and Hard Disk Password when booting up the computer.

To “swipe” refers to the action of reading a fingerprint using the fingerprint sensor.

How to swipe the finger

Using the following steps when swiping fingers for fingerprint registration or authentication will help to minimize authentication failures:

1. Align the first joint of the finger to the center of the sensor. Lightly touch the sensor and swipe finger levelly towards you.
2. While lightly touching the sensor, swipe the finger towards you until the sensor surface becomes visible.
3. Ensure the center of the fingerprint is on the sensor when swiping the finger.

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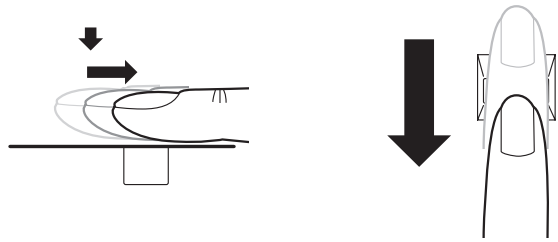

Figure 4-2 Slide the finger over the recognition sensor

- ***Avoid swiping with the finger stiff or pressed-on too hard:***

  Fingerprint reading may fail if the center of the fingerprint is not touching on the sensor, or when finger is swiped while pressing hard. Make sure that the center of the fingerprint is touching the sensor before swiping.

- ***Confirm the center of the fingerprint whirl before swiping:***

  The thumb's fingerprint has a bigger whirl, which is prone to misalignment and distortions. This will cause difficulty in registration and a drop in the authentication success rate. Always confirm the center of the fingerprint whirl so that it is swiped along the centerline of the sensor.

- ***When fingerprint reading is not successful:***

  There is a possibility of authentication failures if the finger is swiped too quickly or too slowly. Follow the onscreen instructions to adjust the speed of the swipe.

Points to note about the fingerprint sensor

Failure to follow these guidelines might result in (1) damage to the sensor or cause sensor failure, (2) finger recognition problems, or lower finger recognition success rate.

- Do not scratch or poke the sensor with your nails or any hard or sharp objects.
- Do not press the sensor strongly.
- Do not touch the sensor with a wet finger or any wet objects. Keep sensor surface dry and free of water vapor.
- Do not touch the sensor with a soiled finger. Minute foreign particles on a soiled or dirty finger may scratch the sensor.
- Do not paste stickers or write on the sensor.
- Do not touch the sensor with a finger or any object with built-up static electricity.

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Observe the following before you place your finger on the sensor whether for fingerprint enrollment/registration or recognition.

- Wash and dry your hands thoroughly.
- Remove static electricity from your fingers by touching any metal surface. Static electricity is a common cause of sensor failures, especially when the weather is dry.
- Clean the sensor with a lint-free cloth. Do not use detergent to clean the sensor.
- Avoid the following finger conditions for enrollment or recognition as they may result in fingerprint enrollment errors or a drop in the fingerprint recognition success rate
  - Soaked or swollen finger (e.g. after taking bath)
  - Injured finger
  - Wet finger
  - Soiled or oily finger
  - Extremely dry skin condition on finger

Observe the following to improve the fingerprint recognition success rate.

- Enroll two or more fingers.
- Enroll additional fingers if recognition failure occurs often using enrolled fingers.
- Check your finger condition. Changed conditions, such as injured, rough, extremely dry, wet, soiled, dirty, oily, soaked, swollen fingers, may lower the recognition success rate. Also if the fingerprint is worn down or the finger becomes thinner or fatter, the recognition success rate may be lowered.
- The fingerprint for each finger is different and unique. Please ensure that only the registered or enrolled fingerprint or fingerprints are used for identification.
- Check sliding position and speed.
- The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.
- The recognition success rate may differ from user to user.

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Fingerprint sensor limitations

- The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint.
- A warning message will be displayed when recognition is abnormal or recognition is not successful within a fixed duration.
- The recognition success rate may differ from user to user.
- Toshiba does not guarantee that this fingerprint recognition technology will be error-free.
- Toshiba does not guarantee that the fingerprint sensor will recognize the enrolled user or accurately screen out unauthorized users at all times. Toshiba is not liable for any failure or damage that might arise out of the use of this fingerprint recognition software or utility.

Points to note about the fingerprint utility

- If Windows® 7's file encryption function EFS (Encryption File System) is used to encrypt a file, the file cannot be further encrypted using the encryption function of this software.
- You can back up the fingerprint data or the information registered to Automatic password input in IE.
- Please use Import/Export on TOSHIBA Fingerprint Utility main menu.
- Please also refer to the fingerprint utility **Help** file for more information. You can start it using the following method:
  - Click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **TOSHIBA Fingerprint Utility**. The main screen is displayed. Click "**?**" in the lower left corner of the screen.

Set up procedure

Please use the following procedure when first using fingerprint authentication.

Fingerprint registration

Enroll the required authentication data using the Fingerprints Enrollment Wizard.

- *The fingerprint authentication uses the same Windows logon ID and password. If the Windows logon password has not been setup, please do so before registration.*
- *This sensor has memory space for at least 20 fingerprint patterns. You might be able to register more fingerprint patterns depending on the sensor memory usage.*

1. Click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **TOSHIBA Fingerprint Utility**. Or double click the icon in the Task Bar.
2. The Enter Windows Password screen is displayed. Enter a password into the **Enter Windows Password** field. Click **Next**.

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3. The **Enroll** screen is displayed. Click the non-enrolled finger icon above the finger and click **Next**.
4. The note for enrollment operation screen is displayed. Confirm the message and click **Next**.
5. The Scanning Practice screen is displayed. You can practice swiping your finger. When you have finished practicing swiping your finger, click **Next**.
6. The last step for enrollment screen is displayed. Swipe three times with the same finger. If scan of fingerprint succeeds, " `Enrollment succeed. Do you want to save this template?`" will show, click "**OK**".
7. In case of finger injury or authentication failure, it is recommended that another fingerprint also be enrolled. The following message will be displayed: `[Strongly recommended to do one more enroll.]` Click **OK** and repeat steps 3, 4, 5 and 6 with another finger.

How to delete the fingerprint data

Saved fingerprint data is stored in the Non-volatile memory inside the fingerprint sensor. If you hand over the PC to others, or dispose of it, the following operations are recommended.

1. Click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **TOSHIBA Fingerprint Utility**.
2. The **TOSHIBA Fingerprint Utility** main menu is displayed.
3. "`Are you sure you want to delete this template?`" will be displayed on screen, click OK button. If you want to delete the other fingerprints, repeat step 2, 3.
   - To delete for all user's fingerprints:
     1. Click "**Run as administrator**" in lower left. If UAC setting for Windows is off, this button will not appear.
     2. User Account Control window is displayed when you click a Run as administrator. Select Allow on User Account Control window.
     3. Swipe your enrolled finger.
     4. Click **Fingerprint control**.
     5. Click **Delete All** button in the lower right.
     6. "`Are you sure you want to delete all fingerprints?`" will be displayed on screen, click **OK** button.

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Windows logon via fingerprint authentication

In place of the usual Windows logon by ID and password, fingerprint authentication also allows logon to Windows.

This is useful especially when many users are using the PCs, as user selection can be skipped.

Fingerprint authentication procedure

1. Start up the computer.
2. The **Logon Authorization** screen is displayed. Choose any of the enrolled fingers and swipe the fingerprint on the sensor. If authentication is successful, the user will be logged on to Windows.

- *If the fingerprint authentication fails, please logon using the Windows logon password.*
- *Please logon using the Windows logon password if the fingerprint authentication failed for five times. To logon using the Windows logon password, enter the Windows logon password at the [Welcome] screen as normal.*
- *A warning message will be displayed when authentication is abnormal or authentication is not successful within a fixed duration.*

Fingerprint system boot authentication

General

The fingerprint authentication system can be used to replace the keyboard based User Password authentication system when booting up

If you do not want to use the fingerprint authentication system for password authentication when booting up, but prefer to use the keyboard-based system instead, press the **ESC** key or click **Switch User** button when the Fingerprint System Authentication screen is displayed. This will switch the password input screen to the keyboard-based one.

- *It is necessary to register the User Password before using the fingerprint Pre-OS feature and its extended function, the fingerprint Single Sign-On feature. Please use TOSHIBA HW Setup to register the User Password.*
- *If you fail fingerprint authentication more than five times, you must enter the User Password or Supervisor Password manually to start the computer.*
- *When swiping, please do it slowly and at a constant speed. If this does not improve the authentication rate, please adjust the speed.*
- *If there are any changes in the environment or settings related to authorization, you will be required to provide authorization information such as a User Password and HDD password.*

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Fingerprint Single Sign-On feature

General

This is a feature that allows the user to complete the authentication for both the User Password (and optionally, the HDD user and Supervisor passwords) and logging on to Windows using only one fingerprint authentication when booting up. It is necessary to register the User Password and Windows Logon password before using the fingerprint Pre- OS feature and this fingerprint Single Sign-On feature. Please use TOSHIBA HW Setup to register your User Password.

Only one fingerprint authentication is required to replace the User Password (and, if selected, the HDD user and Supervisor passwords) and Windows Logon password.

How to enable fingerprint system boot authentication settings and Single Sign-on feature

It is necessary to first enroll your fingerprint with the **TOSHIBA Fingerprint Utility** and **Single Sign-on feature** prior to enabling and configuring the fingerprint Pre-OS feature.

Check that your fingerprint is enrolled before configuring the settings.

1. Logon as Administrator means a user has administrator privileges.
2. Click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **TOSHIBA Fingerprint Utility**.
3. Swipe your finger across the fingerprint sensor.
4. Click **Run As Administrator**. If UAC setting for windows is off, this button won't appear.
5. **User Account Control** window is displayed when you click a **Run as administrator**. Select **Allow** on **User Account Control** window.
6. Swipe your finger across the fingerprint sensor.
7. Click **Setting**.
8. Place a check mark in **Boot authentication** if you want to use the **Single Sign-on feature**, also check on **Single Sign-on**.
9. Click "**Apply**".
10. "`Save succeeded`" is displayed. Click "**OK**".
11. Click **Close**.
12. "`Are you sure to close this window?`" is displayed. Click "**OK**".
13. Click **Close**.
14. "`Are you sure to close this window?`" is displayed. Click "**OK**".

The modified configuration for fingerprint Pre-OS feature becomes effective the next time the system is booted up.

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Fingerprint utility limitations

TOSHIBA does not guarantee that the fingerprint utility technology will be completely secure or error-free. TOSHIBA does not guarantee that the fingerprint utility will accurately screen out unauthorized users at all times. TOSHIBA is not liable for any failure or damage that might arise out of the use of the fingerprint software or utility.

- *The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint. However, there may be instances where certain users are unable to register their fingerprints due to insufficient unique characteristics in their fingerprints.*
- *The recognition success rate may differ from user to user.*

USB Sleep and Charge function

Your computer can supply USB bus power (DC5V) to the USB port even when the power of the computer is turned OFF. “Power OFF” includes Sleep Mode, Hibernation Mode or shutdown state.

This function can only be used for ports that support the USB Sleep and Charge function (hereinafter called “compatible ports”).

Compatible ports are USB ports that have the (⚡) symbol icon.

You can use the “USB Sleep and Charge function” to charge certain USB-compatible external devices such as mobile phones or portable digital music players.

However, the “USB Sleep and Charge function” may not work with certain external devices even if they are compliant with the USB specification. In those cases, turn the power of the computer ON to charge the device.

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- *The “USB Sleep and Charge function” only works for compatible ports.This function is disabled in the default setting. To enable it, you must change [Disabled] to [Enabled].*
- *When “USB Sleep and Charge function” is set to [Enabled], USB bus power (DC5V) will be supplied to compatible ports even when the power of the computer is turned OFF.*
  USB bus power (DC5V) is similarly supplied to the external devices which are connected to the compatible ports. However, some external devices cannot be charged solely by supplying USB bus power (DC5V). As for the specifications of the external devices, please contact the device manufacturer or check the specifications of the external devices thoroughly before use.
- *Using the USB sleep and charge function to charge external devices will take longer than charging the devices with their own chargers.*
- *External devices connected to the USB bus power (DC5V) function that interfaces with the power ON/OFF of the computer may always be in an operational state.*
- *When there is a current overflow of the external devices connected to the compatible ports, USB bus power (DC5V) supply may be stopped for safety reasons.*
- *If USB Sleep and Charge is enabled, the computer’s battery will discharge during hibernation or when the computer is turned off. It is recommended that you connect the AC adaptor to the computer when enabling the USB Sleep and Charge function.*

- *Metal paper clips or hair pins/clips will generate heat if they come into contact with USB ports. Do not allow USB ports to come into contact with metal products, for example when carrying the computer in your bag.*

Starting the USB Sleep and Charge Utility

To start the utility, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** **USB** -> **Sleep and Charge**.

You can set Typical Mode/Alternate Mode/Disable USB sleep and charge function also in BIOS Setup menu. Please refer to *Accessing HW Setup* in Chapter 7 for how to start BIOS Setup Menu.

Enabling USB Sleep and Charge

This utility can be used to enable and disable the USB Sleep and Charge function. Check the “USB Sleep and Charge” checkbox. In the default state, this function is disabled.

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Power supply mode settings

There are two USB Sleep and Charge function modes. “Mode 4 (Default)” should normally be used. Set “Alternate Mode” if the charge function cannot be used in “Typical Mode(Default)”. This function may not be able to be used with some connected external devices even if the appropriate mode is selected. In this situation, uncheck the “USB Sleep and Charge” checkbox and stop using this function.

Battery Settings

This utility can be used to specify the lower limit of remaining battery life for USB Sleep and Charge. Move the slider bar to specify the lower limit. If the remaining battery life falls before the setting, the “USB Sleep and Charge” function will be stopped. Unchecking the “Enable under Battery Mode” checkbox sets the utility to only charge when the AC adaptor is connected.

Using the Function buttons

This section describes the Function buttons.

Seven buttons are provided with some models.

Icon	Function button	DVD	*CD/None
	ECO		
	CD/DVD	Launch TOSHIBA DVD PLAYER	Launch Windows Media Player
▶/II	Play/Pause	Play/Pause	Play/Pause
⏮	Previous	Previous chapter	Previous track
⏭	Next	Next chapter	Next track
	Illumination ON-OFF or Mute	Illumination ON-OFF or Mute	Illumination ON-OFF or Mute
– +	Volume UP and DOWN	Volume UP/ DOWN	Volume UP/Down

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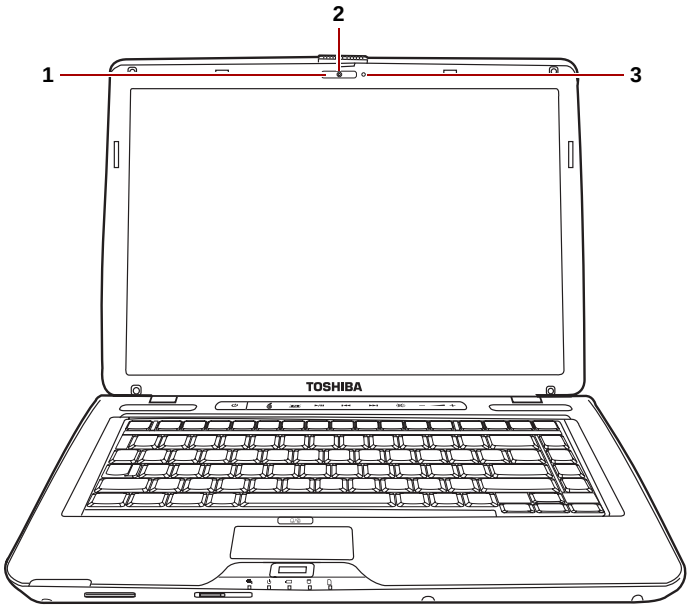
Using the Web Camera

This section describes the bundled webcam utility, which can capture still and video images. The web camera will auto-run when Windows starts.

Please unstick the protective plastic-film before using the Web Camera.



1. Web Camera LED*
2. Web Camera*
3. Built-in Microphone*

* Provided with some models.

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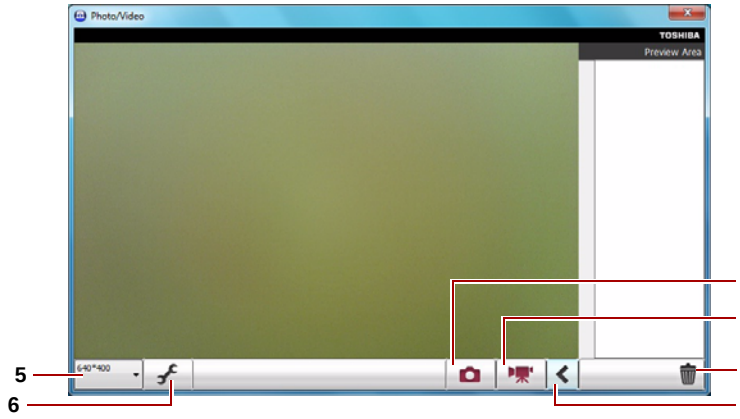
Using TOSHIBA Web Camera Application

TOSHIBA Web Camera Application is pre-configured to start when you turn on Windows® 7 (anchored along the sidebar of your Windows® 7 desktop); if you need to restart it you can: Go to **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **Web Camera Application**.



1. Capture Still Image
2. Video Recording
3. Delete Recorded File
4. Open/Close Preview Area
5. Camera Resolution
6. Capture Settings

1 Capture Still Image

Click to capture a still image, and see a preview of the captured image in preview area.

2 Video Recording

Click to start recording. One moree to stop recording and see preview of the video in Preview Area.

3 Delete Recorded File

Choose a thumbnail of recorded file and click this button to delete this file from hard disk.

4 Open/Close Preview Area

Click to open Preview Area. One more to close Preview Area.

5 Camera Resolution

Choose resolution for Preview, Capture, and Record.

6 Capture Settings

Open Capture Settings dialog box.
Chooses from the Basic tab to select photo and video saving location, select Capture Format and Video Quality.

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Using the microphone

Your computer has a built-in microphone that can be used to record monaural sounds into your applications. It can also be used to issue voice commands to applications that support such functions.(Built-in microphone is provided with some models)

Since your computer has a built-in microphone and speaker, “feedback” may be heard under certain conditions. Feedback occurs when sound from the speaker is picked up in the microphone and amplified back to the speaker, which amplifies it again to the microphone.

This feedback occurs repeatedly and causes a very loud, high-pitched noise. It is a common phenomenon that occurs in any sound system when the microphone input is output to the speaker (throughput) and the speaker volume is too loud or too close to the microphone. You can control throughput by adjusting the volume of your speaker or through the Mute function in the Master Volume panel. Refer to your Windows documentation for details on using the Master Volume panel.

Using the Face Recognition

Face Recognition uses a face verification library to verify the face data of users when they log in to Windows. The user can thus avoid having to enter a password or the like, which makes the login process easier. This software is pre-installed with some models.

Note on Use

- Face Recognition does not guarantee the correct identification of a user. Changes to the likeness of a registrant, such as hair style changes, wearing a cap, or wearing glasses may affect the recognition rates when such changes occur after the registrant had registered.
- Face Recognition may incorrectly recognize faces that are similar to a registrant.
- For high security purposes, Face Recognition is not a suitable substitute for Windows passwords. When security is a high priority, use your established Windows passwords to log in.
- Bright background light and/or shadows may prevent a registrant from being recognized correctly. In that case, log in using your Windows password. If recognition of a registrant fails repeatedly, refer to your computer documentation to learn ways to improve recognition performance.

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Disclaimer

TOSHIBA does not guarantee that the face recognition utility technology willbe completely secure or error-free. TOSHIBA does not guarantee that the face recognition utility will accurately screen out unauthorized users at all times. Toshiba is not liable for any failure or damage that might arise out of the use of the face recognition software or utility.

TOSHIBA, ITS AFFILIATES AND SUPPLIERS SHALL HAVE NO RESPONSIBILITY FOR DAMAGE TO OR LOSS OF ANY BUSINESS, PROFITS, PROGRAMS, DATA, NETWORK SYSTEMS OR REMOVABLE STORAGE MEDIA ARISING OUT OF OR RESULTING FROM THE USE OF THE PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY THEREOF.

How to register the Face Recognition Data

Take a picture for facial verification purposes, and register the data needed when you log in. To register the data needed when you log in, follow the steps as described below:

1. To launch this utility, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **Face Recognition**.
   - The **Registration** screen is displayed for a logged-in user whose face has not been registered.
   - The **Management** screen is displayed for a logged-in user whose face has already been registered.
2. Click the **Register face** button in the **Management** screen. The **Registration** screen is displayed.
   - If you wish to practice, click on the Next button in the Registration screen.
   - If you do not wish to practice, click on the **Next** button in the **Registration** screen.
3. Click the **Next** button to start the guide.
4. First, take a picture while moving your neck slightly to the left and right.
5. Now take a picture while moving your neck down and up.
   - Click the **Back** button to practice the guide once more.
6. Click the **Next** button to start image-capturing process. Adjust the position of your face so that it fits within the face-shaped frame.
7. Once your face has been positioned properly, the recording will commence. Start moving your neck very slightly to the left and right, and then move your neck down and up.
8. Registration will end after you have repeatedly moved your neck left, right, down and up. When the register succeeds, below message will be displayed on the screen:

   Registration successful. Now we'll do the verification test. Click the Next button.

   Click the **Next** button to perform the verification test.

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9. Perform the verification test. Face the screen as you do when you register.
   - If verification fails, click the **Back** button and re-register. Please refer from step 6 to step 8.
10. If verification is successful, click the Next button and register an account.
11. Register the account. Fill in the account registration fields.
    - Fill in all fields.

    When you have finished it, click the **Next** button.
12. The **Management** screen is displayed. The registered account name will be displayed. Clicking on it will cause the captured image of your face to be displayed on the left.

How to Delete the Face Recognition Data

Delete image data, account information, and personal record data created during registration. To delete the Face Recognition Data, follow the steps as described below:

1. To launch this utility, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **Face Recognition**. The **Management** screen is displayed.
2. Select a user which is deleted in the Management screen.
3. Click the **Delete** button. "**You are about to delete the user data. Would you like to continue?**" will be displayed on the screen.
   - If you do not want the data to be deleted, click the **No** button and you will then be returned to the **Management** screen.
   - Clicking on the **Yes** button will remove the selected user from the Management screen.

How to launch the help file

For further information on this utility, please refer to help file.

1. To launch the help file, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **Face Recognition Help**.

Windows Logon via Face Recognition

This section explains how to login to Windows with Face Recognition. Two authentication modes are provided.

- **AUTO Mode Login screen**: If the face authentication tile is selected by default, you can log in without using the keyboard or mouse.
- **1:1 Mode Login screen**: This mode is essentially the same as AUTO mode, but the Select Account screen will appear before the **Display Captured Image** screen, and you will need to select the user account to be authenticated in order to start the authentication process.

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AUTO Mode Login screen

1. Turn on the computer.
2. The **Select Tiles** screen will be displayed.
3. Select **Start face recognition**.
4. "**Please face to the camera**" will be displayed.
5. Verification will be performed. If the authentication is successful, the image data taken in step 4 will be faded in and placed over one another.
   - If an error occurs during authentication, you will be returned to the **Select Tiles** screen.
6. **Windows Welcome** screen will be displayed, and will be logged in automatically to Windows.

1:1 Mode Login screen

1. Turn on the computer.
2. The **Select Tiles** screen will be displayed.
3. Select **Start face recognition**.
4. The **Select Account** screen will be displayed.
5. Select the account, and click the arrow button.
6. "**Please face to the camera**" will be displayed.
7. Verification will be performed. If the authentication is successful, the image data taken in step 6 will be faded in and placed over one another.
   - If an error occurs during authentication, you will be returned to the **Select Tiles** screen.
8. **Windows Welcome** screen will be displayed, and will be logged in automatically to Windows.
   - If authentication was successful, but an authentication error subsequently occurred during the login to Windows, you will be asked to provide your account information.

Using the optical disc drive

The text and illustrations in this section refer primarily to the optical disk drive. However, operation is the same for all other optical media drives. The full-size drive provides high-performance execution of CD/DVD based programs. You can run either 12 cm (4.72") or 8 cm (3.15") CDs/DVDs at tray ODD and 12 cm (4.72") CDs/DVDs at slot ODD without an adaptor. An ATAPI interface controller is used for CD/DVD operation. When the computer is accessing a CD/DVD, an indicator on the drive glows (Only tray ODD).

Refer also to the *Writing CD/DVDs on DVD Super Multi Double Layer drives* section for precautions on writing to CD/DVD.

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Loading discs

To load a disc, follow the steps below and refer to the figures.

1. a. When the power is on, press the eject button to open the drawer slightly.

Figure 4-3 Pressing the eject button

b. Pressing the eject button will not open the drawer when the disc drive's power is off. If the power is off, you can open the drawer by inserting a slender object (about 15 mm) such as a straightened paper clip into the eject hole just to the right of the eject button.

Figure 4-4 Manual release with the eject hole

2. Grasp the drawer gently and pull until it is fully opened.

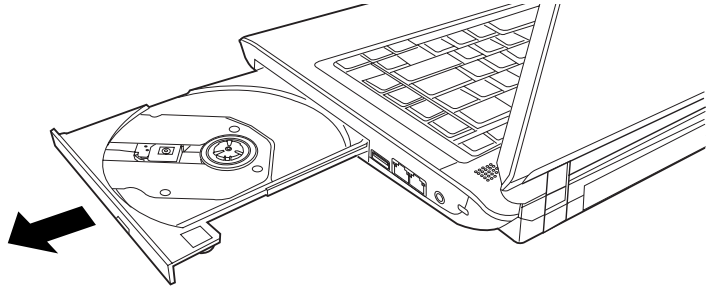

Figure 4-5 Pulling the drawer open

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3. Place the disc, label side up, in the drawer.

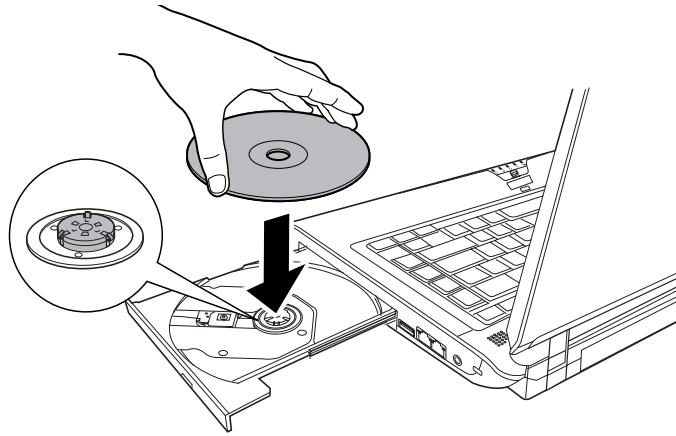

Figure 4-6 Inserting a disc

When the drawer is fully opened, the edge of the computer will extend slightly over the disc tray. Therefore, you will need to turn the disc at an angle when you place it in the tray. After seating the disc, however, make sure it lies flat, as shown in the figure above.

- *Do not touch the laser lens. Doing so could cause misalignment.*
- *Keep foreign matter from entering the drive. Check the back edge of the tray to make sure it carries no debris before closing the drive.*

4. Press gently at the centre of the disc until you feel it click into place. The disc should lie below the top of the spindle, flush with the spindle base.
5. Push the center of the drawer to close it. Press gently until it locks into place.

If the disc is not seated properly when the drawer is closed, the disc might be damaged. Also, the drawer might not open fully when you press the eject button.

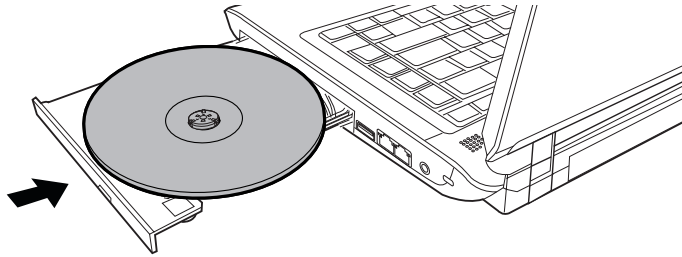

Figure 4-7 Closing the disc drawer

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Slot-loading optical disc drive

For computer with slot-loading optical drive, to load CD/DVD, please follow the steps below and refer to figures.

1. Turn your computer on.
2. Gently hold the CD/DVD by the edges with label side facing up, and insert it into the optical disc drive slot straight on slowly.

- *Use only round standard (12 cm) discs with this slot-loading optical drive. Any other size or shape disc may not be able to be removed from the slot and may damage the system as well as the disc.*
- *Gently push the CD/DVD until it is loaded automatically. Do not push it forcibly or at an angle to the optical disc drive slot. This may cause damage or adhesion of foreign matter on the surface of the CD/DVD. These imperfections may prevent the drive from reading from or writing to it.*

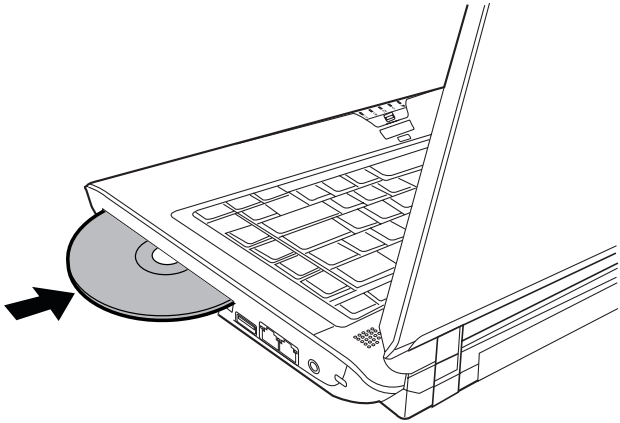

Figure 4-8 Inserting a disc

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Removing discs

To remove the disc, follow the steps below and refer to the figure.

Do not press the eject button while the computer is accessing the disc drive. Wait for the optical media drive indicator to go out before you open the drawer. Also, if the disc is spinning when you open the drawer, wait for it to stop before you remove it.

1. To pop the drawer partially open, press the eject button. Gently pull the drawer out until it is fully opened.

- *When the drawer pops open slightly, wait a moment to make sure the disc has stopped spinning before pulling the drawer fully open.*
- *Turn off the power before you use the eject hole. If the disc is spinning when you open the drawer, the disc could fly off the spindle and cause injury.*

2. The disc extends slightly over the sides of the drawer so you can hold it. Hold the disc gently by its edges and lift it out.

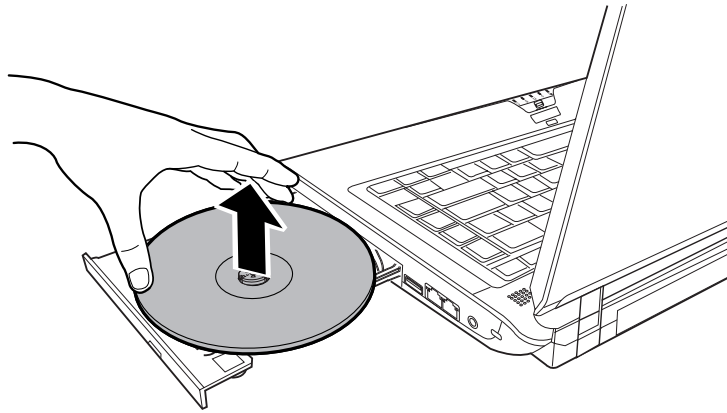

Figure 4-9 Removing a disc

3. Push the centre of the drawer to close it. Press gently until it locks into place.

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Slot-loading optical disc drive

For computer with slot-loading optical drive, please follow the steps below and refer to figures.

1. Make sure that your computer is on.
2. Press the Eject button. The CD/DVD will be ejected about halfway.

Do not place your hand or another object near the optical disc drive slot.

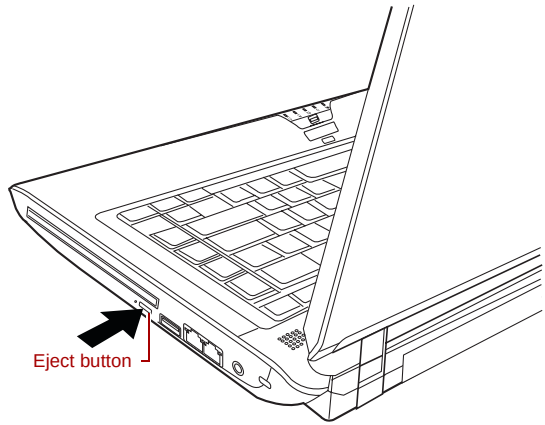
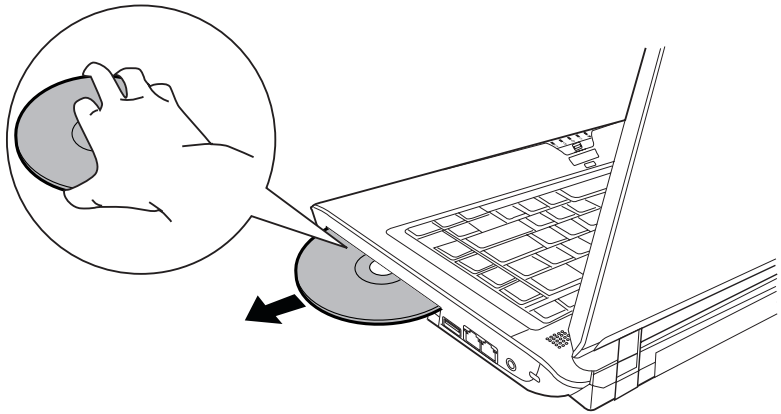


Figure 4-10 Pressing the eject button

3. Gently hold the CD/DVD by the edges and pull it horizontally.



- *Use only round standard (12 cm) discs with this slot-loading optical drive. Any other size or shape disc may not be able to be removed from the slot and may damage the system as well as the disc.*

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Optical Drive Auto Lock (Provided with some models)

This function automatically locks the optical disc drive eject button if the computer detects any vibration or other shocks while running on the battery. This function prevents the disc tray from opening even if the eject button is pushed unexpectedly. When the Optical Drive Auto Lock is on, there will be a key mark on bottom right of the Optical Drive Power icon in the Taskbar.

To enable this function, turn the Optical Drive Power ON.

Setting the Optical Drive Auto Lock

Right click the Optical Drive Power icon in the Taskbar to change the Optical Drive Auto Lock settings.

Enabling and Disabling Optical Drive Auto Lock

1. Right click on the **Optical Drive Power** icon on the Taskbar
2. Click **Optical Drive Auto Lock Enable or Disable**.

Lock Time Settings for Optical Drive Auto Lock

This sets the amount of time required to pass before the optical disc drive eject button unlocks when the computer detects vibration or other shock.

1. Right click on the **Optical Drive Power** icon on the Taskbar.
2. Click **Unlock time settings -> 1s or 3s or 5s**.

When the Optical Drive Auto Lock is engaged, the **FN+Tab** *key combination and Eject Buttons on application screens are disabled.*

- *Optical Drive Auto Lock is not enabled immediately after the computer is started, the disc tray is closed, or the optical disc drive is switched from OFF to ON using the* **FN+Tab** *keys.*

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Writing CD/DVDs on DVD Super Multi Double Layer drives

DVD Super Multi Double Layer drive

You can use the DVD Super Multi Double Layer drive to write data to either CD-R,CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM discs. The TOSHIBA Disc Creator is provided as writing software with this computer.

- *Please refer to the Writable discs, Chapter 2 for details about the types of writable CD and DVD discs that can be supported by this computer.*
- *Do not turn off the power to the optical disc drive while the computer is accessing it as this may cause you to lose data.*
- *To write data to CD-R/-RW media, use the* **TOSHIBA Disc Creator** *feature that is installed on your computer.*
- *When the power of the optical disc drive is off, the disc tray will not open even if the eject button is pushed. Use the ODD to turn the power of the optical disc drive on. Please refer to Chapter 5, The Keyboard.*

- *Use only round standard (12 cm) discs with this slot-loading optical drive. Any other size or shape disc may not be able to be removed from the slot and may damage the system as well as the disc.*
- *When writing information to media using an optical drive, you should always ensure that you connect the AC adaptor to a live power socket. It is possible that, if data is written while powered by the battery pack, the write process may sometimes fail due to low battery power - in these instances data loss may occur.*

Important message

Before you write or rewrite to any of the media supported by the DVD Super Multi Double Layer drive, please read and follow all of the setup and operating instructions in this section. If you fail to do so, you may find that the DVD Super Multi Double Layer drive may not function properly, and you may fail to write or rewrite information successfully - this may cause you to either lose data or incur other damage to the drive or media.

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Disclaimer

TOSHIBA does not bear responsibility for the following:

- Damage to any CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM disc that may be caused by writing or rewriting with this product.
- Any change or loss of the recorded contents of CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media that may be caused by writing or rewriting with this product, or for any business profit loss or business interruption that may be caused by the change or loss of the recorded contents.
- Damage that may be caused by using third party equipment or software.

Given the technological limitations of current optical disc writing drives, you may experience unexpected writing or rewriting errors due to disc quality or problems with hardware devices. In view of this, it is good practice to make two or more copies of important data, in case of any undesired change or loss of the recorded contents.

Before writing or rewriting

- Based on TOSHIBA's limited compatibility testing, we suggest the following manufacturers of CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media, however, it must be noted that disc quality can affect write or rewrite success rates. Please also be aware that in no event does TOSHIBA guarantee the operation, quality or performance of any disc.

CD-R:

TAIYO YUDEN CO., Ltd.

MITSUBISHI KAGAKU MEDIA CO., LTD.

CD-RW: (High-Speed, Multi-Speed)

MITSUBISHI KAGAKU MEDIA CO., LTD.

CD-RW: (Ultra-Speed)

MITSUBISHI KAGAKU MEDIA CO., LTD.

DVD-R:

DVD Specifications for DVD-R Disc for General Version 2.0
HITACHI MAXELL, LTD.
PANASONIC COMMUNICATIONS CO., LTD.
TAIYO YUDEN Co., LTD.

DVD+R:

MITSUBISHI KAGAKU MEDIA CO., LTD.

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DVD-RW:

DVD Specifications for DVD-RW Disc for General Version 1.2
MITSUBISHI KAGAKU MEDIA CO., LTD.
VICTOR COMPANY OF JAPAN, LTD.

DVD+RW:

MITSUBISHI KAGAKU MEDIA CO., LTD.

DVD-RAM:

DVD Specifications for DVD-RAM Disc for Version 2.0, 2.1, or 2.2
PANASONIC COMMUNICATIONS CO., LTD.
HITACHI MAXELL., LTD.

DVD+R DL:

MITSUBISHI KAGAKU MEDIA CO., LTD.

DVD-R DL:

MITSUBISHI KAGAKU MEDIA CO., LTD.

DVD-R for Labelflash™:

FUJIFILM CORPORATION.

DVD+R for Labelflash™:

FUJIFILM CORPORATION.

- *DVD Super Multi Double Layer drive cannot use discs that allow writing faster than 16x speed (DVD-R and DVD+R media), 8x speed (DVD-R (Dual Layer), DVD+RW and DVD+R (Double Layer) media), 6x speed (DVD-RW media), 5x speed (DVD-RAM media).*
- *Some types and formats of DVD-R (Dual Layer) and DVD+R (Double Layer) discs may be unreadable.*
- *2.6 GB and 5.2 GB DVD-RAM media cannot be read from or written to.*
- *DISC created in DVD-R (Dual Layer) format4 (Layer Jump Recording) cannot be read.*

- If the disc is poor in quality, or is dirty or damaged, writing or rewriting errors may be noted - ensure that you check all discs for dirt or damage before you use them.
- The actual number of rewrites to CD-RW, DVD-RW, DVD+RW or DVD-RAM media will be affected by the quality of the disc itself and the way in which it is used.
- There are two types of DVD-R media available, authoring discs and general use discs. Do not attempt to use authoring discs as only general use discs can be written to by a computer drive.
- You can use both DVD-RAM discs that can be removed from a cartridge and DVD-RAM discs designed without a cartridge.
- You may find that other computer DVD-ROM drives or other DVD players may not be able to read DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW discs.

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- Data written to a CD-R, DVD-R, DVD-R (Dual Layer), DVD+R or DVD+R (Double Layer) discs cannot be deleted either in whole or in part.
- Data deleted/erased from a CD-RW, DVD-RW, DVD+RW or DVD-RAM disc cannot be recovered. You must check the content of the disc carefully before you delete it, taking care that, if multiple drives that can write data to discs are connected, you do not delete data from the wrong one.
- In writing to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media, some space is required for file management, so you may not be able to write to the full capacity of the disc.
- Since the disc is based on the DVD standard, it might be filled with dummy data if the written data is less than about 1 GB. Therefore, in these circumstance, even if you write only a small amount of data, it might take additional time to fill in the dummy data.
- When multiple drives that can write data to discs are connected, be sure that you do not write to or delete data from the wrong drive.
- Be sure to connect the AC adaptor to the computer before you write or rewrite any information.
- Before you enter either Sleep Mode or Hibernation Mode, take care to ensure that any DVD-RAM writing has been completed. In this instance, writing is finished if you can eject the DVD-RAM media.
- Be sure to close all other software programs except for the writing software itself.
- Do not run software such as a screen saver which can put a heavy load on the processor.
- Operate the computer at its full power settings - do not use any powersaving features.
- Do not write information while virus checking software is running, instead wait for it to finish, then disable the virus protection applications, including any software that checks files automatically in the background.
- Do not use any hard disk utilities, including those that are intended to enhance hard disk drive access speeds, as they may cause unstable operation and damage data.
- CD-RW (Ultra Speed +) media should not be used as data may be lost or damaged.
- You should always write from the computer’s hard disk drive onto the CD/DVD - do not try to write from shared devices such as a server or any other network device.
- Writing with software other than TOSHIBA Disc Creator has not been confirmed, therefore operation with other software applications cannot be guaranteed.

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When writing or rewriting

Please observe the following points while you write or rewrite data to CD-R, CD-RW, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer), DVD+RW or DVD-RAM media:

- Always copy data from the hard disk drive to the optical media - do not use the cut-and-paste function as the original data will be lost if there is a write error.
- Do not perform any of the following actions:
  - Change users in the Windows® 7 operating system.
  - Operate the computer for any other function, including such tasks as using a mouse or Touch Pad, or closing/opening the display panel.
  - Start a communication application such as a modem.
  - Apply impact or vibration to the computer.
  - Install, remove or connect external devices, including such items as an ExpressCard, SD/SDHC memory card, USB device, external monitor, i.LINK device, or an optical digital device.
  - Use the audio/video control button to reproduce music or voice.
  - Open the optical disc drive.
- Do not use shut down, log off, Sleep Mode or Hibernation Mode functions while writing or rewriting.
- Make sure that the write/rewrite operation is completed before going into either Sleep Mode or Hibernation Mode (writing is completed if you can remove an optical media on the optical disc drive).
- If the media is of poor quality, or is dirty or damaged, writing or rewriting errors may occur.
- Set the computer on a level surface and avoid places subject to vibration such as airplanes, trains or cars. In addition, do not use the computer on an unstable surface such as a stand.
- Keep mobile phones and other wireless communication devices away from the computer.

TOSHIBA Disc Creator

Please be aware of the following limitations when you use the TOSHIBA Disc Creator:

- DVD Video cannot be created using TOSHIBA Disc Creator.
- DVD Audio cannot be created using TOSHIBA Disc Creator.
- You cannot use TOSHIBA Disc Creator's "Audio CD for Car or Home CD Player" function to record music to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW media.
- Do not use the "Disc Backup" function of TOSHIBA Disc Creator in order to copy DVD Video or DVD-ROM material that has copyright protection.

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- DVD-RAM discs cannot be backed up using the “Disc Backup” function of TOSHIBA Disc Creator.
- You cannot back up CD-ROM, CD-R or CD-RW media to DVD-R, DVD-R (Dual Layer) or DVD-RW media using the “Disc Backup” function of TOSHIBA Disc Creator.
- You cannot back up CD-ROM, CD-R or CD-RW media to DVD+R, DVD+R (Double Layer) or DVD+RW media using the “Disc Backup” function of TOSHIBA Disc Creator.
- You cannot back up DVD-ROM, DVD Video, DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW to CD-R or CD-RW media using the ‘Disc Backup’ function of TOSHIBA Disc Creator.
- TOSHIBA Disc Creator cannot record in packet format.
- You might not be able to use the “Disc Backup” function of TOSHIBA Disc Creator to back up a DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW disc that was made with other software on a different optical media recorder.
- If you add data to a DVD-R, DVD-R (Dual Layer), DVD+R or DVD+R (Double Layer) disc that you have already recorded to, you might not be able to read the added data under some circumstances. For example, it cannot be read under 16-bit operating systems, such as Windows 98SE and Windows Me, while in Windows NT4 you will need Service Pack 6 or later, and in Windows 2000, you will need Service Pack 2. In addition to this, some DVD-ROM and DVD-ROM/CD-R/RW drives cannot read this added data regardless of the operating system.
- TOSHIBA Disc Creator does not support recording to DVD-RAM discs - to achieve this you should use Windows Explorer or another similar utility.
- When you back up a DVD disc, be sure that the source drive supports recording to DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW media - if this is not the case then the source disc might not be backed up correctly.
- When you back up a DVD-R, DVD-R (Dual Layer), DVD-RW, DVD+R, DVD+R (Double Layer) or DVD+RW disc, be sure to use the same type of disc.
- You cannot partially delete any data written to a CD-RW, DVD-RW or DVD+RW disc.

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Data Verification

To verify that data has been written or rewritten correctly to a data CD/DVD you should follow the steps below before you begin the write/rewrite process:

1. Display the setting dialog box by one of the following two steps:
   - Click the **Recording settings** button ( ) for writing on the main toolbar in the **Data Disc** mode.
   - Select **Settings for Each Mode** -> **Data CD/DVD** in the **Settings** menu.
2. Mark the **Verify Written Data** check box.
3. Select **File Open** or **Full Compare** mode.
4. Click the **OK** button.

How to learn more about TOSHIBA Disc Creator

Please refer to the Help files for additional TOSHIBA Disc Creator information.

TOSHIBA DVD PLAYER

This software is provided for playback of DVD Video.

It has an on-screen interface and functions. Click **Start** -> **All Programs** -> **TOSHIBA DVD PLAYER** -> **TOSHIBA DVD PLAYER**.

For details on how to use TOSHIBA DVD PLAYER, see the help file.

Please be aware of the following limitations when you use the TOSHIBA DVD PLAYER:

Notes on use

- Frame dropping, audio skipping or out of synch audio and video may occur during playback of some DVD Video titles.
- Close all other applications when using the “TOSHIBA DVD PLAYER”. Do not open any other applications or do not carry out any other operations during DVD Video playback. Playback may stop or not function properly in some situations.
- Unfinalized DVDs created on home DVD recorders may not be playable on the computer.
- Use DVD-Video discs with a region code which is either “the same as the factory default setting” or “ALL”.
- Do not playback DVD discs Video while watching or recording television programs using other applications. Doing so may cause DVD Video playback or television program recording errors. In addition, if prescheduled recording starts during DVD Video playback it may cause DVD Video playback or television program recording errors. Please view DVD Video during times when there is no recording prescheduled.
- The resume function cannot be used with some discs on the “TOSHIBA DVD PLAYER”.

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- It is recommended the AC adaptor be connected when playing DVD-Video. Power saving features may interfere with smooth playback. When playing DVD-Video using battery power, set the Power Options to “High performance”.
- Screen savers will not display while playing a movie in the “TOSHIBA DVD PLAYER”. The computer will also not go into Sleep Mode, Hibernation Mode or shutdown while using “TOSHIBA DVD PLAYER”.
- Do not configure the Display automatic power off function to run while the “TOSHIBA DVD PLAYER” is running.
- Do not switch to Hibernation or Sleep Mode when running the “TOSHIBA DVD PLAYER”.
- Do not lock the computer using the Windows logo ( ) + L keys or the Fn + F1 keys when running the “TOSHIBA DVD PLAYER”.

Media care

This section provides tips on protecting data stored on your CD’s, DVD’s and floppy diskettes. Handle your media with care. Following the simple precautions listed below will increase the lifetime of your media and protect the data stored on it.

CD/DVDs

1. Store your CD’s and DVD’s in the containers they originally came in to protect them and keep them clean.
2. Do not bend the CD’s or DVD’s.
3. Do not write on, apply a sticker to, or otherwise mar the surface of the CD or DVD that contains the data.
4. Hold the CD or DVD by its outside edge or the edge on the center hole - any fingerprints on the surface of the disc can prevent the drive from properly reading data.
5. Do not expose the CD or DVD to direct sunlight, extreme heat or cold.
6. Do not place heavy objects on your CD’s or DVD’s.
7. If your CD’s or DVD’s become dusty or dirty, wipe them with a clean dry cloth from the center hole outwards - do not wipe in a circular direction. If necessary, you can use a cloth that has been lightly dampened in water or a neutral cleaner but you must not use benzine, thinner or any similar cleaning solution.

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Floppy diskettes

1. Store your floppy diskettes in the container they came in to protect them and keep them clean. If a floppy diskette becomes dirty, clean it with a soft, lightly dampened cloth - do not use cleaning fluid.
2. Never open the shutter or touch the magnetic surface of your floppy diskette - doing this could permanently damage it and lose data.
3. Always handle floppy diskettes with care to prevent the loss of stored data.
4. Always apply the floppy diskette label in the correct location and never apply a new label on top of an existing one - in this instance the label could come loose and damage the floppy diskette drive.
5. Never use a pencil for writing on a floppy diskette label as the dust from the pencil lead could cause a system malfunction if it found its way onto the computer's components. In this instance, always use a felt-tipped pen and write the label first before applying it to the floppy diskette.
6. Never put a floppy diskette in a location where water or other liquid may make contact with it, or where it is excessively damp - either of these conditions could cause data loss.
7. Never use a wet or damp floppy diskette - this could damage the floppy diskette drive or other devices within the computer.
8. Data may be lost if the floppy diskette is twisted, bent, or exposed to direct sunlight, extreme heat or cold.
9. Do not place heavy objects on your floppy diskettes.
10. Do not eat, smoke, or use items such as erasers near your floppy diskettes as foreign particles inside the jacket of the floppy diskette can damage the magnetic surface.
11. Magnetic energy can destroy the data on your floppy diskettes. In view of this you should keep your floppy diskettes away from speakers, radios, televisions and other sources of magnetic fields.

Sound system

This section describes some of the audio control functions.

Adjusting System Volume

You can control the overall level of sound using Windows Volume Mixer.

To launch Volume Mixer, follow the steps below.

1. Locate the **Speaker** icon on the taskbar.
2. Right-click the **Speaker** icon on the taskbar.
3. Select Open **Volume Mixer** from the menu.

Click the **Device** button to display available playback devices. Select **Speakers** to use the internal speakers for listening. Adjust speaker volume by moving the slider up or down to raise or lower the volume. Click the **Mute** button to mute the sound.

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You may see another control under **Applications** in **Volume Mixer**. It is the control for an application which is currently running. The **System Sounds** is always displayed since it controls the system sounds' volume.Changing System Sounds

System sounds are assigned to inform you when certain events happen. This section explains how select an existing scheme or save one you have modified.

To launch the configuration dialog window for system sounds, follow the steps below:

1. Right-click the **Speaker** icon on the task tray.
2. Select **Sounds** from the menu.

Realtek HD Audio Manager

You can confirm and change the audio configuration using the **Realtek Audio Manager**. To launch the **Realtek Audio Manager**, Click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Realtek HD Audio Manager**. When you first launch the Realtek Audio Manager, you will see following device tabs. **Speakers** is the default output device. **Microphone** is the default input device. To change the default device, click the **Set Default Device** button under the chosen device tab.

- **Speakers** is the default output device. Select it when using the internal speakers or headphones.
- **Digital Output** should be selected when connecting the optical cable to the Headphone, S/PDIF and Line out jack for playing digital sound on digital audio equipment. Digital Output can only be used by connecting an optical audio cable.
- **Microphone** is the default input device. It should be selected when using the computer's internal microphone or an external microphone connected the Microphone to record sound.

Information

Click the **Information button** to view hardware information, software information, and language setting.

Speaker Configuration

Click the **playback button** to confirm the internal speakers or the headphone sound is coming from the right direction.

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Sound Effects

This section explains how to select various sound effects.

- **Environment** - simulates reverberations of sound for familiar environments around us. You can select an existing preset in the menu.
- **Equalizer** - raises or lowers a frequency of sound to simulate a popular genre of music. You can select an existing preset in the menu.
- **Karaoke** - Cancels the specific frequency of sound and results in the **Vocal Cancellation**. Clicking the **Karaoke** icon, lowers the vocal sound within music. Using the arrow buttons will adjust the musical key of the sound.

Microphone Effects

Microphone Effects are only found within the Microphone window.

- **Noise Suppression** reduces background noise and fan noise.
- **Accoustic Echo Cancellation** reduces feedback and feedback echo.

Default Format

You can change the sample rate and bit depth of sound.

Modem

This section describes how to connect and disconnect the internal modem to and from a telephone jack.

The internal modem does not support voice functions. All data and fax functions are supported.

- *In case of a lightning storm, unplug the modem cable from the telephone jack.*
- *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

Region selection

Telecommunication regulations vary from one region to another, so you will need to make sure the internal modem's settings are correct for the region in which it will be used.

To select a region, follow the steps below.

1. Click **Start** -> **All Programs** -> **TOSHIBA** -> **Networking** -> **Modem Region Select**.

Do not use the Country/Region Select function in the Modem setup utility in the Control Panel if the function is available. If you change the Country/Region in the Control Panel, the change may not take effect.

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2. The Region Selection icon will appear in the Task Bar. Click the icon with the primary mouse button to display a list of regions that the modem supports. A sub menu for telephony location information will also be displayed. A check will appear next to the currently selected region and telephony location.
3. Select a region from the region menu or a telephony location from the submenu.
   - When you click a region it becomes the modem's region selection, and the New Location for telephony will be set automatically.
   - When you select a telephony location, the corresponding region is automatically selected and it becomes the modem's current region setting.

Properties menu

Click the icon with the secondary mouse button to display properties menu on the screen.

Settings

You can enable or disable the following settings:

AutoRun Mode

The Region Select utility starts automatically when you start up the operating system.

Open the Dialling Properties dialog box after selecting region.

The dialing properties dialog box will be displayed automatically after you select the region.

Location list for region selection.

A submenu appears displaying location information for telephony.

Open dialog box, if the modem and Telephony Current Location region code do not match.

A warning dialog box is displayed if current settings for region code and telephony location are incorrect.

Modem Selection

If the computer cannot recognize the internal modem, a dialog box is displayed. Select the COM port for your modem to use.

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Dialing Properties

Select this item to display the dialing properties.

If you are using the computer in Japan, the Telecommunications Business Law requires that you select Japan region mode. It is illegal to use the modem in Japan with any other selection.

Connecting

To connect the modem cable, follow the steps below.

- *The modular cable that comes with the computer must be used to connect a modem. Connect the end of the modular cable with the core to the computer.*
- *In case of a lightning storm, unplug the modem cable from the telephone jack.*
- *Do not connect the modem to a digital telephone line. A digital line will damage the modem.*

1. Plug one end of the modular cable into the modem jack.
2. Plug the other end of the modular cable into a telephone jack.

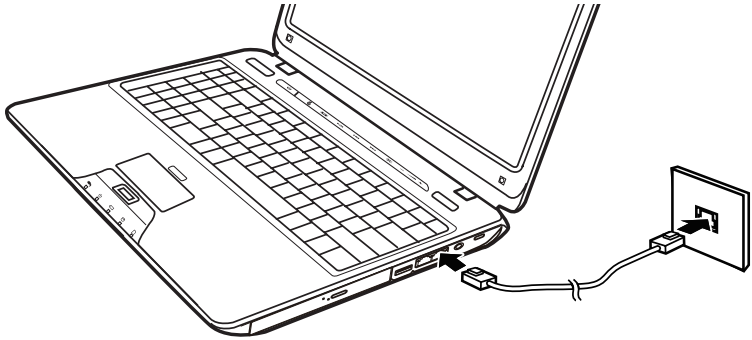

Figure 4-11 Connecting the internal modem

Do not pull on the cable or move the computer while the cable is connected.

Disconnecting

To disconnect the internal modem cable, follow the steps below.

1. Pinch the lever on the connector in the telephone jack and pull out the connector.
2. In the same way, pull the cable's other connector out of the computer.

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Wireless communications

The computer's wireless communication function supports both Wireless LAN and Bluetooth devices.

Only some models are equipped with both Wireless LAN and Bluetooth functions.

- *Do not use the Wireless LAN (Wi-Fi) or Bluetooth functionalities near a microwave oven or in areas subject to radio interference or magnetic fields. Interference from a microwave oven or other source can disrupt Wi-Fi or Bluetooth operation.*
- *Turn Wi-Fi and Bluetooth functionalities off when near a person who may have a cardiac pacemaker implant or other medical electric device. Radio waves may affect pacemaker or medical device operation, possibly resulting in serious injury. Follow the instruction of your medical device when using any Wi-Fi or Bluetooth functionality.*
- *Always turn off Wi-Fi or Bluetooth functionality if the computer is near automatic control equipment or appliances such as automatic doors or fire detectors. Radio waves can cause malfunction of such equipment, possibly resulting in serious injury.*
- *It may not be possible to make a network connection to a specified network name using the ad hoc network function. If this occurs, the new network(*) will have to be configured for all computers connected to the same network in order to re-enable network connections.*
- ** Please be sure to use new network name.*

Wireless LAN

The Wireless LAN feature is not available on all models. Where present, it supports the A,B, G and draft N standards but it is compatible with other LAN systems based on Direct Sequence Spread Spectrum/Orthogonal Frequency Division Multiplexing radio technology that complies with IEEE802.11 Wireless LAN standard.

- Automatic Transmit Rate Select mechanism in the transmit range of 54, 48, 36, 24, 18, 12, 9 and 6 Mbit/s. (IEEE 802.11a/g)
- Automatic Transmit Rate Select mechanism in the transmit range of 11, 5.5, 2 and 1 Mbit/s. (IEEE 802.11b)
- Roaming over multiple channels
- Card Power Management
- Wired Equivalent Privacy (WEP) data encryption, based on the 128 bit encryption algorithm.
- Advanced Encryption Standard (AES) data encryption, based on 128 bit encryption algorithm.

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Security

- Be sure to enable the encryption function otherwise you may expose your computer to illegal access by an outsider across the Wireless LAN which may cause intrusion, eavesdropping, and the loss or destruction of stored data. TOSHIBA strongly recommend the customer to enable the encryption function.
- TOSHIBA is not liable for the eavesdropping of data due to the use of Wireless LAN and the damage thereof.

Bluetooth Stack for Windows by TOSHIBA (depends on the model purchased)

Please note that this software is specifically designed for the following operating systems:

- Windows® 7

  Detailed information regarding the use with these operating systems is listed below. Please refer also to the electronic information which is included with each software.

This Bluetooth Stack is based on Bluetooth Version 1.1/1.2/2.0/2.1+EDR specification. TOSHIBA cannot confirm compatibility between any PC products and/or other electronic devices that use Bluetooth other than TOSHIBA notebook computers.

Release Notes related to the Bluetooth Stack for Windows by TOSHIBA

1. Fax application software:

   Regarding FAX application software, there are some software that you cannot use on this Bluetooth Stack.

2. Multi User:

   On Windows® 7, the use of Bluetooth is not supported in a multiuser environment. This means that, when you use Bluetooth, other users logged onto the same computer will not be able to use its Bluetooth functionality.

Product Support

The latest information regarding Operating System support, Language Support or available upgrades can be found on our web site *http://www.toshiba-europe.com/computers/tnt/bluetooth.htm* in Europe or *www.pcsupport.toshiba.com* in the United States.

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Wireless communication switch

You can enable or disable the Wireless LAN function, with the on/off switch. No transmissions are sent or received when the switch is off. Slide the Switch to turn it on and turn it off.

Set the switch to off in airplanes and hospitals. Check the indicator. It will stop glowing when the wireless communication function is off.

Wireless activity LED

The wireless activity LED indicates the status of the wireless communication functions.

Indicator status	Indication
LED off	Wireless communication switch is set to off.Automatic power down because of overheating. Power malfunction.
LED glows	Wireless communication switch is on. Wireless LAN is turned on by an application.

If you used the Task Bar to disable Wireless LAN, you will need to restart the computer to re-enable it. Alternatively, you can also follow this procedure:

1. In the Control Panel, click **System and Security**.
2. Click the **Device Manager** under the System category. The Device Manager window opens. Click **Network adaptors**.
3. Select your preferred Wireless Network adaptor, then click the **Enable** button in the tool bar.

LAN

The computer has built-in support for Fast Ethernet LAN (10 megabits per second, 10BASE-T), Fast Ethernet LAN (100 megabits per second, 100BASE-TX) and Gigabit Ethernet LAN (1000 megabits per second, 1000BASE-T).

This section describes how to connect disconnect to a LAN.

Do not install or remove a memory module while Wake-up on LAN is enabled.

- *The Wake-up on LAN function consumes power even when the system is off. Leave the AC adaptor connected while using this feature.*
- *The Link speed (10/100/1000 megabits per second) changes automatically depending on the network conditions (connected device, cable or nose and so on).*

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LAN cable types

The computer must be configured properly before connecting to a LAN. Logging onto a LAN using the computer's default settings could cause a malfunction in LAN operation. Check with your LAN administrator regarding set-up procedures.

If you are using Fast Ethernet LAN (100 megabits per second, 100BASE-TX), be sure to connect with a CAT5 cable or higher. You cannot use a CAT3 cable.

If you are using Giga bit Ethernet LAN, be sure to connect with a CAT5-E cable or higher. You cannot use a CAT5 or a CAT3 cable.

If you are using Ethernet LAN (10 megabits per second, 10BASE-T), you can connect with a CAT3 or higher cable.

Connecting LAN cable

To connect the LAN cable, follow the steps below.

1. Turn off the power to the computer and to all external devices connected to the computer.
2. Plug one end of the cable into the LAN jack. Press gently until you hear the latch click into place.

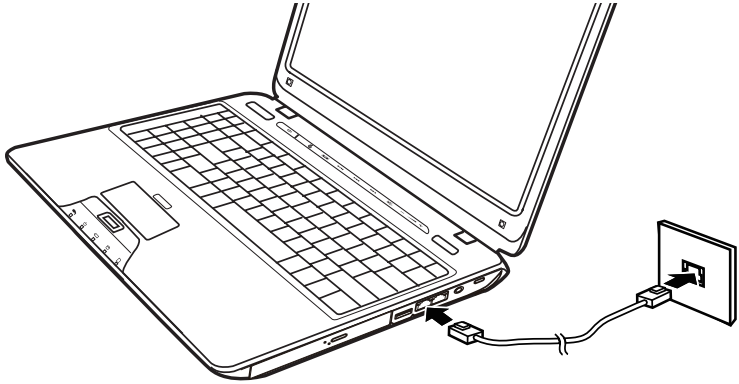

Figure 4-12 Connecting the LAN cable

3. Plug the other end of the cable into a LAN hub connector. Check with your LAN administrator before connecting to a hub.

Disconnecting LAN cable

To disconnect the LAN cable, follow the steps below.

1. Pinch the lever on the connector in the computer's LAN jack and pull out the connector.
2. Disconnect the cable from the LAN hub in the same manner. Check with your LAN administrator before disconnecting from the hub.

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Wireless WAN Guide

Introduction

Depending on the model you purchased your TOSHIBA Notebook come with an installed Wireless WAN (wide area network) device. This device gives you the ability for a high-speed connection to the Internet, corporate intranet, and your email while you are away from the office. This section provides the information you need to get started and use your TOSHIBA Wireless WAN module

Safety Precautions

Please read the Instruction Manual for Safety and Comfort enclosed to the User's manual. It contains important safety information.

Using your PC aboard an aircraft

Present aviation agency regulations and airline policies typically require that you turn off your computer, disable Wireless communication in BIOS setup, and turn off any wireless devices, before boarding an aircraft.

- *While it is foreseeable that during certain non-critical phases of your flight, certain computer and/or wireless technologies might be permitted for use on board an aircraft, use of wireless WAN communication is normally prohibited. Since this computer is equipped with the wireless WAN feature, please be sure to disable Wireless communication in BIOS setup even if use of wireless LAN and/or Bluetooth™ is permitted. For this computer model, Wireless communication in BIOS setup controls all wireless communications and wireless LAN and/or Bluetooth™ cannot be selectively turned on without also turning on wireless WAN. If the Wireless communication is enabled in BIOS setup, wireless WAN radio waves may be transmitted.*
- *Unapproved use of computer and/or wireless communication might interfere with navigation and aircraft communication systems, possibly causing serious injury.*

Limitation of Liability

While Toshiba has made every effort at the time of publication to ensure the accuracy of the information herein, product specifications, configurations, system component/options availability are all subject to change without notice.

Installing/removing a SIM card

1. Shut down the computer - make sure the Power indicator is off.
2. Remove the AC adaptor and all cables connected to the computer.
3. Turn the computer upside down.

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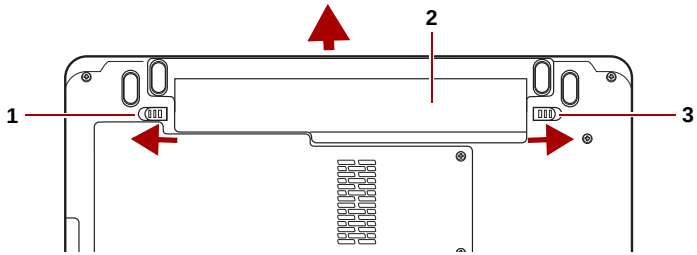
Always make sure the display panel is closed before turning the computer upside down.

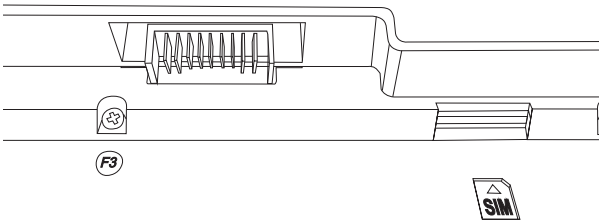
4. Slide the battery safety lock (1) towards the release ( ) position to make the battery release latch movable.



1. Battery Pack Lock
2. Battery Pack
3. Battery Release Latch

Figure 4-13 Releasing the battery pack

5. Slide and hold the battery release latch (1) to disengage the battery pack and then remove it from the computer (2).
6. Locate the SIM Card Slot.



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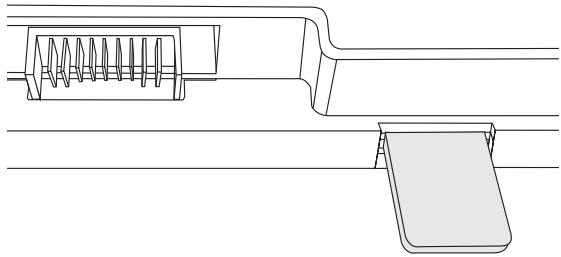
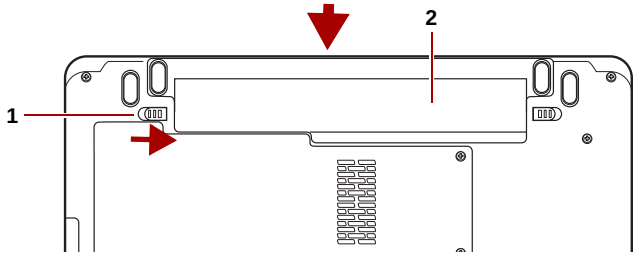
7. Slide your SIM card into the SIM Card Slot with the metal connectors facing up.



- *Never allow metal objects, such as screws, staples and paper clips, to enter the PC. Foreign metal objects can create a short circuit, which can cause PC damage and fire, possibly resulting in serious injury.*
- *Do not touch the connectors on the SIM card or on the computer. Debris on the connectors may cause access problems.*

8. Insert the battery pack as far as it will go into the computer (1).
9. Ensure that the battery pack is securely in place and the battery safety lock (2) is in its lock position.



1. Battery Pack Lock
2. Battery Pack

Figure 4-14 Securing the battery pack

10. Turn your computer over.

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Disabling or enabling wireless devices

Fn + F8: This hot key enables/disables the wireless devices installed in your computer.

The wireless modes are:

- Enable all Devices: Enables the Wi-Fi, Bluetooth® and 3G modules.
- Disable all Devices: Disables the Wi-Fi, Bluetooth® and 3G modules.
- Enable or Disable Wi-Fi: Enables or disables just the Wi-Fi module.
- Enable or Disable Bluetooth®: Enables or disables just the Bluetooth® module.
- Enable or Disable Wireless WAN: Enables or disables just the Wireless WAN module.

Regulatory Information

FCC compliance does not apply to this product with a Wireless WAN Module installed.

Industry Canada (IC) compliance does not apply to this product with a Wireless WAN Module installed.

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Cleaning the computer

To help ensure long, trouble-free operation, keep the computer free of dust and use care with liquids around the computer.

- Be careful not to spill liquids into the computer. If the computer does get wet, turn the power off immediately and let the computer dry completely before you turn it on again.
- Clean the computer using a slightly damp (with water) cloth. You can use glass cleaner on the display. Spray a small amount of cleaner on a soft, clean cloth and wipe the screen gently with the cloth.

Never spray cleaner directly onto the computer or let liquid run into any part of it. Never use harsh or caustic chemical products to clean the computer.

- Remove the dust from the cooling vents on the Left side of the computer regularly with a vacuum cleaner. Refer to the *Left side* section in Chapter 2, *The Grand Tour*.

Moving the computer

While the computer is designed for flexible day to day usage you should exercise a few simple precautions when moving it in order to help ensure trouble-free operation.

- Before moving the computer, it recommends changing the function of TOSHIBA HDD Protection. Refer to the section, *Using the Hard Disk Drive (HDD) Protection*, in this chapter.
- Make sure all disk activity has ended before moving the computer. Check the HDD indicator on the computer.
- If a CD/DVD is in the drive, remove it. Also make sure the disc tray is securely closed.
- Turn off (shut down) the computer.
- Disconnect the AC adaptor and all peripherals before moving the computer.
- Close the LCD display panel. Do not pick up the computer by its display panel
- Before carrying your computer, shut down the computer, disconnect the power cable and wait until the PC cools down. Failure to follow this instruction could result in minor injury.
- Always turn off the power when you move the computer. If the power button has a lock, set it to the lock position. Also be careful not to subject the computer to impact. Failure to follow this instruction could result in damage to computer, computer failure or loss of data.
- Never transport your computer with PC cards installed. This could cause damage to your computer and/or PC card, resulting in product failure.
- Use the carrying case when transporting the computer.

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- When carrying your computer, be sure to hold it securely so that it does not fall or hit anything.
- Do not carry your computer by holding protruded portions.

Using the Hard Disk Drive (HDD) Protection

This computer has a function for reducing the risk of damage on the hard disk drive.

Using an acceleration sensor built into the computer, TOSHIBA HDD Protection detects vibration shocks and similar signs of movement of the computer, and automatically moves the Hard Disk Drive head to a safe position to reduce the risk of damage that could be caused by head-to-disk contact.

The TOSHIBA HDD Protection function does not guarantee that the hard disk drive will not be damaged.

When vibration is detected, a message will be displayed on the screen, and the icon in the Taskbar notification area will changed to the protection state. This message is displayed until the OK button is pressed or 30 seconds pass. When vibration subsides, the icon returns to the normal state.

Taskbar icon

State	Icon	Description
Normal		TOSHIBA HDD Protection is enabled.
Protection		TOSHIBA HDD Protection is active. The hard disk drive head is in a safe position
OFF		TOSHIBA HDD Protection is disabled.

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TOSHIBA HDD Protection Properties

You can change the TOSHIBA HDD Protection settings by using the TOSHIBA HDD Protection window. To open the window, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **HDD Protection Settings**. The window can also be started from the icon on the Taskbar or from the **Control Panel**.

HDD Protection

You can choose whether to enable or disable TOSHIBA HDD Protection.

Detection Level

This function can be set to four levels. The sensitivity levels in which vibrations, impacts and their similar signs are detected can be set to OFF, 1, 2 and 3 in ascending order. Level 3 is recommended for better protection of the computer. However, when the computer is used in a mobile environment or in other unstable conditions, setting the detection level to 3 could result in frequent execution of TOSHIBA HDD Protection, which will slow Hard Disk Drive reading and writing. Set a lower detection level when the speed of Hard Disk Drive reading and writing is a priority.

Different detection levels can be set depending on whether the computer is used as handheld or mobile usages, or whether it is used in a stable environment such as on a table in the workplace or at home. By setting different detection levels for the computer depending on whether it runs with the AC power (desktop) or with batteries (handheld or mobile usage), the detection level automatically switches according to the power connection mode.

3D Viewer

This feature displays a 3D object on the screen which moves in according to tilting or vibration of the computer. When the TOSHIBA HDD Protection detects computer vibration the Hard Disk Drive head is parked and the 3D object disk rotation will stop. When the head is un-parked the disk will begin to rotate again. The **3D Viewer** can be started from the icon in the task tray.

- *This 3D object virtually represents the Computer's internal Hard Disk Drive. This representation may vary from the actual number of disks, disk rotation, head movement, part size, shape and direction.*
- *This feature may use a large amount of CPU and memory on some models. The computer may become slow or sluggish when attempting to run other applications while the 3D Viewer is displayed.*
- *Intensely shaking the computer or other subjecting it to strong impacts may cause damage to the computer.*

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Details

To open the Details window, click the Setup Detail button in the TOSHIBA HDD Protection Properties window.

Detection Level Amplification

When the AC adaptor is disconnected or the lid is closed, HDD Detection assumes that the computer will be carried and sets the detection level to the maximum for 10 seconds.

TOSHIBA HDD Protection Message

Specify whether to display a message when TOSHIBA HDD Protection is active.

This function does not work when the computer is starting, in sleep mode, in hibernation mode, in transition to hibernation mode, recovering from hibernation mode, or power off. Be sure to not subject the computer to vibration or impact while the function is disabled.

Using the touchscreen (provided with some models)

This computer features a touchscreen which allows you to use your finger on the display panel to perform the same function as a touchpad or mouse. The touchscreen monitor includes the following features.

- Multi-Touch Support for the Touch Keyboard: The touchscreen supports multi-touch for the soft touch keyboard so that you can enjoy a more realistic experience, such as pressing multiple buttons simultaneously—like SHIFT + <letter> to capitalize.
- Zoom: With zoom you have the ability to zoom in on an image by moving two fingers closer together, or zoom out by moving two fingers apart in Windows Explorer and many applications. Using these zoom gestures, you can easily switch between view modes such as zooming from Small icons to Extra Large icons.
- Press and Tap for Right Clicking: The touchscreen includes a new, fast multi-touch gesture to access a right click menu. Simply touch an item with one finger and use another finger to tap.
- Drag, Drop and Select Items: You can now use the touchscreen to drag, drop and select text inside Web sites that scroll both horizontally and vertically.

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Points to note about the touchscreen

Failure to follow these guidelines might result in damage to the touchscreen or cause touchscreen failure.

- Operate the touchscreen with your finger.
- Do not apply too much pressure to the touchscreen.
- Do not touch the touchscreen with a wet finger or any wet objects. Keep sensor surface dry and free of water vapor.
- Do not touch the sensor with a soiled finger.
- Do not place heavy objects on the machine.
- Do not use long fingernails and rings or other metal to touch the screen.
- The touchscreen contains glass and some electronic parts which must be handled with utmost care. Dropping and strong impact applied may break this product.
- When the touchscreen becomes dirty clean it with glass wiping cloth or dry cloth while the computer is turned off. Do not use volatile liquids such as alcohol, thinner or petroleum benzine to clean the screen.
- In order to avoid damages to the display screen, please refrain from doing anything other than the specified operation methods. Failure to do so could cause a malfunction or characteristic deterioration.

Touchscreen settings

- To configure your touchscreen's settings click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Tablet PC Settings** -> **Setup (In the Configure box)**.
- To calibrate your touchscreen's settings click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Tablet PC Settings** -> **Calibrate**.
- To change touch input settings click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Pen and Touch** -> **Touch (tab)**
- To change settings for left-handed or right-handed users click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Tablet PC Settings** -> **Other (Tab)**.
- To change or create flick assignments click **Start** -> **Control Panel** -> **Hardware and Sound** -> **Pen and Touch** -> **Flicks (tab)**.

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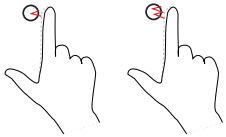
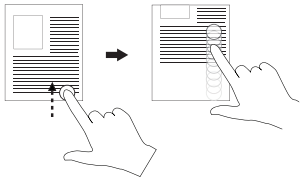
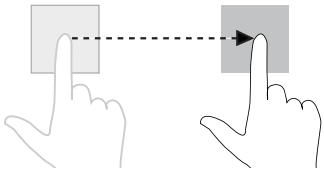
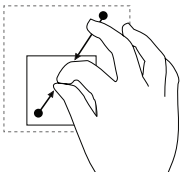
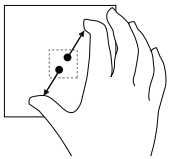
Touchscreen gestures

Gesture	Windows Usage	Action	Diagram
Tapping	Click	Lightly tapping on an object in the screen performs the same function as a mouse click. A double tap is the same as a double click.	
Flicking	Default: Pan Up/ Down/Left/ Right	Flicking the screen in either an up, down, left, or right allows you to perform various functions according to assignments set in Control Panel.	
Dragging	Mouse Drag	Holding your finger on an item on the screen while moving your finger around allows you to drag items to different locations on the screen. The same motion also allows you to slowly scroll through screens.	
Pinching	Zoom Out	Touching the screen with two fingers apart and pinching together allows for you to zoom out.	
Expanding	Zoom In	Touching the screen with two fingers close together and spreading them out allows for you to zoom in.	

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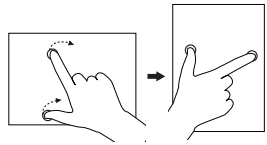
Rotating	Rotation	Touching two points on an image and moving your fingers in a twisting motion allows you to rotate images.	
Press and Tap	Right-Click	Pressing the screen with one finger and then tapping with a second finger nearby brings up the right-click menu.	
Press and Hold	Right-Click	Pressing, holding, and releasing on the screen with a finger brings up the right-click menu.	

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Chapter 5

The Keyboard

The computer's keyboard layouts are compatible with a 104/105-key enhanced keyboard. By pressing some keys in combination, all the 104/ 105-key keyboard functions can be executed on the computer.

The number of keys on your keyboard depends on which country/region's keyboard layout your computer is configured with. Keyboards for numerous languages are available.

There are six types of keys: typewriter keys, keypad overlay, function keys, soft keys, Windows® special keys, and cursor control keys.

Typewriter keys

The typewriter keys produce the upper- and lower-case letters, numbers, punctuation marks, and special symbols that appear on the screen.

There are some differences, however, between using a typewriter and using a computer keyboard:

- Letters and numbers produced in computer text vary in width. Spaces, which are created by a "space character," may also vary depending on line justification and other factors.
- The lowercase l (el) and the number 1 (one) are not interchangeable on computers as they are on a typewriter.
- The uppercase O (oh) and the 0 (zero) are not interchangeable.
- The **Caps Lock** function key locks only the alphabetic characters in uppercase while the shift lock on a typewriter places all keys in the shifted position.
- The **Shift** keys, the **Tab** key, and the **BackSpace** key perform the same function as their typewriter counterparts but also have special computer functions.

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F1 ... F12 function keys

The function keys (not to be confused with Fn) are the 12 keys at the top of your keyboard. These keys function differently from other keys.

F1 through F12 are called function keys because they execute programmed functions when pressed. Used in combination with the Fn key, keys marked with icons execute specific functions on the computer. Refer to the section, Soft keys: Fn key combinations, in this chapter. The function executed by individual keys depends on the software you are using.

Soft keys: Fn key combinations

The Fn (function) is used in combination with other keys to form soft keys. Soft keys are key combinations that enable, disable or configure specific features.

Some software may disable or interfere with soft-key operations. Soft-key settings are not restored by the Sleep Mode feature.

Emulating keys on enhanced keyboard

Figure 5-1 A 101-key enhanced keyboard layout

The keyboard is designed to provide all the features of the 104-key enhanced keyboard, shown in figure above. The 104/105-key enhanced keyboard has a numeric keypad and scroll lock key. It also has additional **Enter** and **Ctrl** keys to the right of the main keyboard. Since the keyboard is smaller and has fewer keys, some of the enhanced keyboard functions must be simulated using two keys instead of one on the larger keyboard.

Your software may require you to use keys that the keyboard does not have. Pressing the **Fn** key and one of the following keys simulates the enhanced keyboard's functions.

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Press **Fn + F11** to access the integrated keypad. When activated, the keys with gray markings on the bottom edge become numeric keypad keys. Refer to the *Keypad overlay* section in this chapter for more information on how to operate these keys. The power on default for both settings is off. Press **Fn + F12** to lock the cursor on a specific line. The power on default is off.

Hot keys

Mute: Turns the volume on and off.

Lock: Enters “Lock computer” mode. To restore your desktop, you need to log on again.

Power plan: Displays the power save modes and lets you change the power settings.

Sleep: This hot key switches the system to Sleep Mode.

Hibernate: This hot key switches the system to Hibernation mode.

Output: Changes the active display device.

Brightness (decreases): Turns the monitor brightness down.

Brightness (increases): Turns the monitor brightness up.

Wireless: Switches the active wireless devices if the wireless communication switch is switched on.

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TouchPad: Enables or disables the Touch Pad function.

Enable Keypad: Enables or disables the Key Pad function.

Number Lock: Enables or disables the Number Lock function.

Scroll Lock: Enables or disables the Scroll Lock function.

Zoom: Changes the display resolution.

TOSHIBA Zooming Utility (reduce): Reduces the icon size on the desktop or the font size within one of the supported application windows.

TOSHIBA Zooming Utility (enlarge): Increases the icon size on the desktop or the font size within one of the supported application windows.

Before using Fn+1 and Fn+2, you must install the TOSHIBA Zooming Utility. The Utility only supports the following application windows: Microsoft Internet Explorer, Microsoft Office, Windows Media Player, Adobe Reader and the icons on the desktop.

Keyboard Backlight (On/Off)*: Turns the backlight of the keyboard on and off.

* This function is provided with some models.

Volume Down: Turns the volume down.

Volume Up: Turns the volume up.

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Fn Sticky key (Depends on the model you purchased)

You can use the TOSHIBA Accessibility Utility to make the **Fn** key sticky, that is, you can press it once, release it, and then press an "**F number**" key. To start the TOSHIBA Accessibility Utility, click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **Accessibility**.

Windows® special keys

The keyboard provides two keys that have special functions in Windows® : Windows® logo key activates the start menu and the other, the application key, has the same function as the secondary mouse button.

This key activates the Windows® start menu.

This key has the same function as the secondary mouse button.

Keypad overlay

Your computer's keyboard does not have an independent numeric keypad, but its numeric keypad overlay functions like one.

The keys in the centre of the keyboard with gray letters make up the numeric keypad overlay. The overlay provides the same functions as the numeric keypad on the 104/105-key enhanced keyboard described previously.

Turning on the overlays

The numeric keypad overlay can be used for numeric data input.

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Numeric mode

To turn on the Numeric mode, press Fn + F11. Now try numeric data entry using the keys in the following figure. Press Fn + F11 again to turn off the overlay.

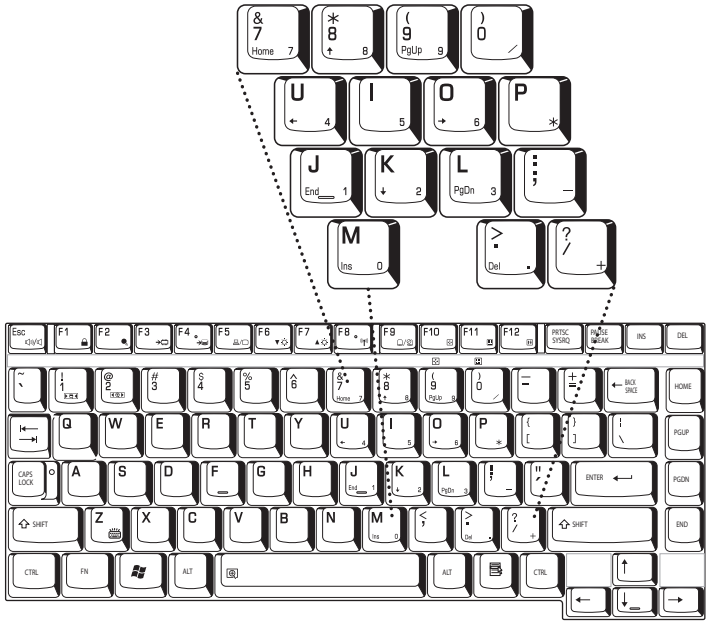

Figure 5-2 The numeric keypad overlay

Temporarily using normal keyboard (overlay on)

While using the overlay, you can temporarily access the normal keyboard without turning off the overlay:

1. Hold Fn and press any other key. All keys will operate as if the overlay were off.
2. Type upper-case characters by holding Fn + Shift and pressing a character key.
3. Release Fn to continue using the overlay.

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Generating ASCII characters

Not all ASCII characters can be generated using normal keyboard operation. But, you can generate these characters using their ASCII codes.

With the overlay on:

1. Hold down **Alt**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt**, and the ASCII character appears on the display screen.

With the overlay off:

1. Hold down **Alt + Fn**.
2. Using the overlay keys, type the ASCII code.
3. Release **Alt + Fn**, and the ASCII character appears on the display screen.

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Chapter 6

Power and Power-Up Modes

The computer's power resources include the AC adaptor and internal batteries. This chapter gives details on making the most effective use of these resources including charging and changing batteries, tips for saving battery power, and power up modes.

Power conditions

The computer's operating capability and battery charge status are affected by the power conditions: whether an AC adaptor is connected, whether a battery is installed, and what the charge level is for the battery.

Table Power conditions

		Power On	Power off (no operation)
AC adaptor connected	Battery fully charged	• Operates • LED: **Battery** white	• LED: **Battery** white
	Battery partially charged or no charge	• Operates • Quick Charge • LED: **Battery** orange	• Quick charge • LED: **Battery** orange
	No battery installed	• Operates • No charge • LED: **Battery** off	• No charge • LED: **Battery** off

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Table Power conditions

		Power On	Power off (no operation)
Universal AC adaptor not connected	Battery charge is above low battery trigger point	• Operates • LED: **Battery** off	
	Battery charge is below low battery trigger point	• Operates • LED: **Battery** flashes orange	
	Battery charge is exhausted	Computer shuts down	
	No Battery installed	• Cannot operates • LED: **Battery** off	

Power indicators

As shown in the above table, the **Battery Power** indicators on the system indicator alert you to the computer's operating capability and battery charge status.

Battery indicator

Check the **Battery** indicator to determine the status of the battery pack. The following indicator lights indicate the battery status:

Flashing orange	The battery charge is low. The AC adaptor must be connected to recharge the battery.
Orange	Indicates the AC adaptor is connected and charging the battery.
White	Indicates the AC adaptor is connected and the battery is fully charged.
No light	Under any other conditions, the indicator does not light.

If the battery becomes too hot while it is being charged, the charge will stop and the battery indicator will go out. When the battery's temperature falls to a normal range, charge will resume. This occurs whether the computer's power is on or off.

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Power indicator

Check the **Power** indicator to determine the power status:

White	Indicates power is being supplied to the computer and the computer is turned on.
Blinking orange	Indicates power is being supplied to the computer while the computer is in Sleep Mode. The indicator turns on for one second and off for two seconds.
No light	Under any other conditions, the indicator does not light.

Battery

Battery types

The computer has the following batteries:

- Battery pack (6cell or 12cell depending on the model.)
- Real Time Clock (RTC) battery

- *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Do not remove the battery pack while the computer is in Sleep Mode. Data is stored in RAM, so if the computer loses power it will be lost. When the computer is powered off in Sleep Mode, and the AC adaptor is not connected, the main battery pack supplies power to maintain data and programs in memory. If the battery pack is completely discharged, Sleep Mode does not function and the computer loses all data in memory.*

Battery pack

When the AC adaptor is not connected, the computer's main power source is a removable lithium ion battery pack, also referred to in this manual as the main battery. You can purchase additional battery packs for extended use of the computer away from an AC power source.

Before you remove the battery pack, set the computer to Hibernation Mode or save your data and shut down the computer. Do not change the battery pack while the AC adaptor is connected.

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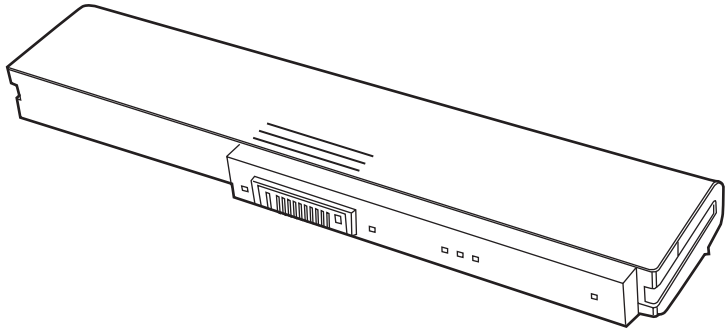

Figure 6-1 Battery pack

To ensure that the battery pack maintains its maximum capacity, operate the computer on battery power at least once a month until the battery pack is fully discharged. Refer to *Extending battery life* in this chapter for procedures. If the computer is continuously operated on AC power through an AC adaptor for an extended period, more than a month, the battery may fail to retain a charge. It may not function efficiently over the expected life of the battery and the Battery indicator may not indicate a low-battery condition.

Real Time Clock battery

The Real Time Clock (RTC) battery provides power for the internal real time clock and calendar. It also maintains the system configuration.

If the RTC battery becomes completely discharged, the system loses this data and the real time clock and calendar stop working.

The computer's RTC battery is a lithium ion battery and should be replaced only by your dealer or by a TOSHIBA service representative. The battery can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations

- *You can change the settings of the Real Time Clock by pressing F2 in POST.*
- *After configuring the time and date for the Real Time Clock battery, we recommend that you turn the power status of your computer to "ON" so that the Real Time Clock battery is charged. Refer to Chapter 9 Troubleshooting, for details.*

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If the following message is displayed on the LCD:

```
ERROR 0271: Check date and time settings.
            WARNING 0251: System CMOS checksum
            bad-Default configuration used.
            Press [F1] to resume, [F2] to setup.
```

The charge in the RTC battery is getting low or has been exhausted. You will need to set the date and time within the BIOS setup using the following steps:

1. Press **F2** key - the BIOS setup screen will be displayed.
2. Set the date in **System Date**.
3. Set the time in **System Time**.
4. Press **F10** key. Confirmation message will appear.

Press **Enter** key. BIOS setup will terminate and the computer will be rebooted.

After configuring the date and time it is recommended that you switch the computer on and then leave it in this state so that the Real Time Clock battery can be charged.

Care and use of the battery pack

This section provides the important safety precautions in order to handle your battery pack properly.

Refer to the enclosed **Instruction Manual for Safety and Comfort** for detailed precautions and handling instructions.

- *Make sure the battery is securely installed in the computer before attempting to charge the battery pack. Improper installation could generate smoke or fire, or cause the battery pack to rupture.*
- *Keep the battery pack out of reach of infants and children. It can cause injury.*

- *The battery pack is lithium ion battery, which can explode if not replaced, used, handled or disposed of properly. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Charge the battery pack only in an ambient temperature between 5 and 35 degrees Celsius. Otherwise, the electrolyte solution might leak, battery pack performance might deteriorate and the battery life might be shortened.*
- *Never install or remove the battery pack without first turning off the power and disconnecting the AC adaptor. Never remove the battery pack while the computer is in Sleep Mode. Data could be lost.*

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Never remove the battery pack while the Wake-up on LAN function is enabled. Data will be lost. Before you remove a battery pack, disable the Wake-up on LAN function.

Charging the batteries

When the power in the battery pack becomes low, the **Battery** indicator flashes orange indicating that only a few minutes of battery power remain. If you continue to use the computer while the **Battery** indicator flashes, the computer enables Hibernation Mode (so you don't lose data) and automatically turns off.

You must recharge a battery pack when it becomes discharged.

Procedures

To recharge a battery pack while it is installed in the computer, connect the AC adaptor to the **DC IN 19V** jack and plug the other end into a working outlet.

The **Battery** indicator glows orange when the battery is being charged.

Use only the computer connected to an AC power source to charge the battery pack. Never attempt to charge the battery pack with any other charger.

Time

The following table shows the approximate time required to fully charge a discharged battery.

	Charging time (hours)	
Battery type	**Power on**	**Power off**
Battery pack (6cell, 12cell)	4-10 hours	4 hours max
RTC Battery	About 24 hours	About 24 hours

The charging time when the computer is on is affected by ambient temperature, the temperature of the computer and how you use the computer. If you make heavy use of external devices, for example, the battery might scarcely charge at all during operation. Refer also to the section Maximizing battery operating time*.*

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Battery charging notice

The battery may not charge right away under the following conditions:

- The battery is extremely hot or cold. If the battery is extremely hot, it might not charge at all. To ensure the battery charges to its full capacity, charge the battery at room temperature of 10° to 30°C (50° to 88°F).
- The battery is nearly completely discharged. Leave the AC adaptor connected for a few minutes and the battery should begin charging.

The **Battery** indicator may show a rapid decrease in battery operating time when you try to charge a battery under the following conditions:

- The battery has not been used for a long time.
- The battery has completely discharged and been left in the computer for a long time.
- A cool battery is installed in a warm computer.

In such case, follow the steps below.

1. Fully discharge the battery by leaving it in the computer with the power on until the power automatically shuts off.
2. Plug in the AC adaptor.
3. Charge the battery until the **Battery** indicator glows blue.

Repeat these steps two or three times until the battery recovers normal capacity.

Leaving the AC adaptor connected will shorten battery life. At least once a month, run the computer on battery power until the battery is fully discharged, then recharge the battery.

Monitoring battery capacity

Remaining battery power can be monitored using the following methods.

- Clicking the battery icon on the task bar
- Via the Windows Mobility Center window

- *Wait at least 16 seconds after turning on the computer before trying to monitor the remaining operating time. The computer needs this time to check the battery's remaining capacity and to calculate the remaining operating time, based on the current power consumption rate and remaining battery capacity. The actual remaining operating time may differ slightly from the calculated time.*
- *With repeated discharges and recharges, the battery's capacity will gradually decrease. Therefore, an often used, older battery will not operate for as long as a new battery even when both are fully charged.*

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Maximizing battery operating time

A battery's usefulness depends on how long it can supply power on a single charge. How long the charge lasts in a battery depends on:

- CPU processing speed (Depends on the model you purchased)
- Screen brightness
- Cooling method (Depends on the model you purchased)
- System Sleep Mode
- System Hibernation
- Monitor power off
- How often and how long you use the hard disk, optical disc.
- How much charge the battery contained to begin with.
- How you use optional devices, such as a PC Card, to which the battery supplies power.
- Enabling Sleep Mode conserves battery power if you are frequently turning the computer off and on.
- Where you store your programs and data.
- Closing the display when you are not using the keyboard saves power.
- Operating time decreases at low temperatures.
- The condition of the battery terminals. Make sure the battery terminals stay clean by wiping them with a clean dry cloth before installing the battery pack.

Retaining data with power off

When you turn off your computer with fully charged batteries, the batteries retain data for the following approximate time periods.

Battery pack (6cell, 12cell)	Approximately 2 days (Sleep mode, 6cell) Approximately 4 days (Sleep mode, 12cell) Approximately 5 days (Shutdown mode, 6cell) Approximately 10 days (Shutdown mode, 12cell)
RTC battery	Approximately 3 months

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Extending battery life

To maximize the life of your battery pack:

- At least once a month, disconnect the computer from a power source and operate it on battery power until the battery pack fully discharges. Before doing so, follow the steps below.
  1. Turn off the computer's power.
  2. Disconnect the AC adaptor and turn on the computer's power. If it does not turn on go to step 4.
  3. Operate the computer on battery power for five minutes. If the battery pack has at least five minutes of operating time, continue operating until the battery pack is fully discharged. If the Battery indicator flashes or there is some other warning to indicate a low battery, go to step 4.
  4. Connect the AC adaptor to the computer and the power cord to a power outlet. The Battery indicator should glow orange to indicate that the battery pack is being charged. If the Battery indicator does not glow, power is not being supplied. Check the connections for the AC adaptor and power cord.
  5. Charge the battery pack until the Battery indicator glows white.
- If you have extra battery packs, rotate their use.
- If you will not be using the system for an extended period, more than one month, remove the battery pack.
- Store spare battery packs in a cool dry place out of direct sunlight.

Replacing the battery pack

When the battery pack reaches the end of its operating life you will need to install a new one. The life of the battery pack is generally about 500 recharges. If the **Battery** indicator flashes orange shortly after fully recharging the battery, the battery pack needs to be replaced.

You might also replace a discharged battery pack with a charged spare when you are operating your computer away from an AC power source. This section explains how to remove and install the battery pack.

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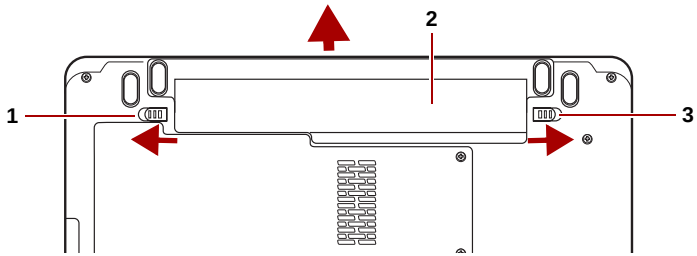
Removing the battery pack

To replace a discharged battery, follow the steps below.

- *When handling battery packs, do not short-circuit the terminals. Also do not drop, hit or otherwise apply impact; do not scratch or break the casing and do not twist or bend the battery pack.*
- *Do not remove the battery pack while the computer is in Sleep Mode. Data is stored in RAM, so if the computer loses power it will be lost.*
- *In Hibernation Mode, data will be lost if you remove the battery or disconnect the AC adaptor before the save is completed. Wait for the Built-in HDD indicator to go out.*
- *Do not touch the latch while holding the computer. Or you may get injured by the dropped battery by unintentional release of the latch.*

1. Save your work.
2. Turn the computer's power off. Make sure the Power indicator is off.
3. Remove all cables connected to the computer.
4. Turn the computer upside down.
5. Slide and hold the battery release latch to free the battery pack after moving the battery pack lock into its unlock position - then slide the battery pack out of the computer.



1. Battery Pack Lock
2. Battery Pack
3. Battery Release Latch

Figure 6-2 Releasing the battery pack

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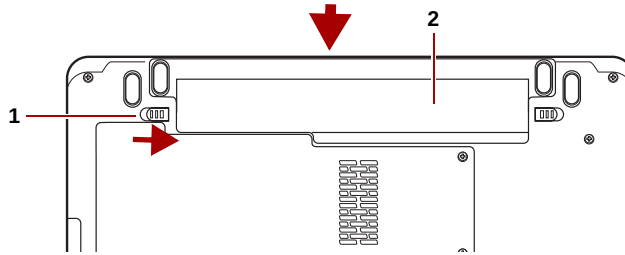
Installing the battery pack

To install a battery, follow the steps below.

- *The battery pack is a lithium ion battery, which can explode if not properly replaced, used, handled or disposed of. Dispose of the battery as required by local ordinances or regulations. Use only batteries recommended by TOSHIBA as replacements.*
- *Do not touch the battery release latch while holding the computer or the battery pack might fall out due to the unintentional release of the battery release latch and cause injuries.*

1. Turn the computer's power off.
2. Disconnect all cables connected to the computer.
3. Insert the battery pack.
4. Ensure the battery pack lock is moved into its locked position.



1. Battery Pack Lock
2. Battery Pack

Figure 6-3 Securing the battery pack

Starting the computer by password

To start up the computer with the user password, follow these steps:

1. Turn on the power as described in Chapter 3, *Getting Started*. The following message appears:

At this point, the hotkeys Fn + F1 to F9 do not work. They will function after you enter the password.

2. Enter the password.
3. Press **Enter**.

If you enter the password incorrectly three times in a row, the computer shuts off. In this case, you must turn the computer back on to retry password entry.

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or if available

Swipe your fingerprint on the sensor if you have already registered the fingerprint with the Fingerprint utility and enabled **Fingerprint Power on Security**. If you would not like to swipe your finger or cannot authenticate the fingerprint for some reasons, push the **BkSp** key to skip the fingerprint authentication screen. You can try to swipe the fingerprint up to five times. If you failed fingerprint authentication more than five times, you must enter the password manually to start the computer.

Power-up modes

The computer has the following power-up modes:

- Boot Mode: Computer shuts down without saving data. Always save your work before you turn the computer off in boot mode.
- Hibernation Mode: Data in memory is saved to the hard disk.
- Sleep Mode: Data is maintained in the computer's main memory.

Refer also to the sections Turning on the power *and* Turning off the power *in Chapter 3,* Getting Started*.*

Hot keys

You can use hot keys **Fn + F3** to enter Sleep Mode and **Fn + F4** to enter Hibernation Mode. Refer to Chapter 5, *The Keyboard* for details.

Panel power off/on

You can set up your computer so that power turns off automatically when you close the display panel. When you open the panel, power turns on in Sleep Mode or Hibernation Mode but not in boot mode.

If the panel power off function is enabled and you use Shut down Windows®, do not close the display until the shut down function is completed.

System Auto Off

This feature turns the system off automatically if it is not used for a set duration. The system shuts down in Sleep Mode or Hibernation Mode in Windows®.

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Chapter 7

HW Setup

This chapter explains how to use TOSHIBA HW Setup program to configure your computer. TOSHIBA HW Setup lets you configure settings for General, Password, Display, Boot Priority, Keyboard, LAN, and USB. Components included in Setup may depend on the model used.

Accessing HW Setup

To run HW Setup, click , **All Programs** -> **TOSHIBA** -> **Utilities** -> **HWSetup**.

HW Setup Window

The HW Setup window contains the following tabs: General, Password, Display, Boot Priority, Keyboard, USB and LAN . There are also these three buttons:

OK	Accepts your changes and closes the HW Setup window.
Cancel	Closes the window without accepting your changes.
Apply	Accepts all your changes without closing the HW Setup window.

General

This window displays the BIOS version and contains two buttons:

Default	Return all HW Setup values to the factory settings.
About	Display the HW Setup version.

Setup

This field displays BIOS Version and date.

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Password

This tab allows you to set or reset the user password for power on.

User Password

Lets you register a new password or un-register an existing password.

Not Registered	Un-registers an existing password
Registered	Register a new password by following the on screen instructions

Owner String

This blank field is used to display a message when the password field is displayed on startup. If a password is not registered the message will not be shown. The maximum length is 256 characters.

Display

This tab lets you select the internal LCD and/or external monitor when the computer boots up.

Power On Display

Lets you select the display to be used when the computer is booted (This setting is only available on Standard VGA mode and not available on Windows® Desktop).

Auto-Selected	If any external display is connected, the power on display will be in external display only mode. otherwise it will be in LCD only mode.
System LCD only	Irrespective of external display connection, the power on display will be in integrated LCD only mode.

Boot Priority

Boot Priority Options

This option sets the priority for booting the computer.

To select the boot drive you want, follow the steps below.

1. Boot-up your computer and press **F12** to enter the boot menu.
2. The boot select screen will display various devices such as: Hard disk Drive, CD/DVD, FDD and LAN.
3. Use the upper/lower cursor keys to highlight the boot device you want and apply.

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Keyboard

Wake-up on Keyboard

When this feature is enabled and the computer is in Sleep Mode, you can turn on the computer by pressing any key. It is effective only for the internal keyboard and only when the computer is in Sleep Mode.

Enabled	Enables the Wake-up on Keyboard function.
Disabled	Disables the Wake-up on Keyboard function (Default).

USB

Legacy USB Support

Use this option to enable or disable Legacy USB support. If your operating system does not support USB, you can still use a USB mouse, keyboard, and FDD by setting the Legacy USB Support to enable.

LAN

Wake-up on LAN

This feature lets the computer's power be turned on from shutdown when it receives a wake-up packet (Magic packet) from the LAN.

Regarding Wake-up on LAN from Sleep or Hibernation mode, you must check the "Allow the device to wake the computer" checkbox within the LAN Device properties.

(This feature does not affect the Wake-up on LAN from Sleep or Hibernation mode.)

Enabled	Enables Wake-up on LAN
Disabled	Disables Wake-up on LAN (Default).

Built-in LAN

This feature enables or disables the Built-in LAN.

Enabled	Enables Built-in LAN function (Default).
Disabled	Disables Built-in LAN function.

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Illumination

Illumination ON/OFF

This feature allows you to set the conditions around the illumination LED.

On	On (Default).
Off	Off.

Keyboard Backlight

This feature allows you to set the conditions around the keyboard backlight LED.

Auto	Keyboard backlight will be on when hit any key. After [Backlight Lighting Time], backlight will be off. [Backlight Lighting Time] is 15 sec by default.
On	On. (Pressing **FN + Z** or **FN + z** switches the keyboard backlight on or off.)
OFF	Off. (Pressing **FN + Z** or **FN + z** switches the keyboard backlight on or off.)

Button Setting

Function Button

This feature allows you to set the conditions for the power button and/or other buttons.

Enabled	Enable the function button (Default).
Disabled	Disable the function button.

SATA

eSATA

This feature allows you to set conditions of eSATA.

Enabled	Enables the eSATA port (Default).
Disabled	Disables the eSATA port in order to save power.

SATA Interface setting

This feature allows you to set SATA interface setting.

Performance	Let HDD/SSD work with maximum performance (Default).
Battery life	Let HDD/SSD work with battery life mode. If this setting is selected the performance go down.

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Chapter 8

Optional Devices

Optional devices can expand the computer's capabilities and its versatility. This chapter describes connection or installation of the following devices, which are available from your TOSHIBA dealer:

Cards/memory

- ExpressCard
- SD (Secure Digital) / SDHC (Secure Digital High Capacity) / MMC (Multi Media Card) / MEMORY STICK / MEMORY STICK PRO / xD (xDPicture Card) cards
- Memory expansion

Power devices

- Additional battery pack
- Additional AC adaptor

Peripheral devices

- External monitor

Other

- Security lock

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ExpressCard Slot

The computer is equipped with an ExpressCard slot that can accommodate one ExpressCard.

Inserting an ExpressCard

One ExpressCard connector is located on the left side of the computer. The computer's hot-install feature lets you install ExpressCard while the computer's power is on.

To install an ExpressCard, follow the steps below.

1. Insert the ExpressCard.
2. Press gently to ensure a firm connection.

Windows® hot-install feature lets you insert an ExpressCard while the computer's power is on.

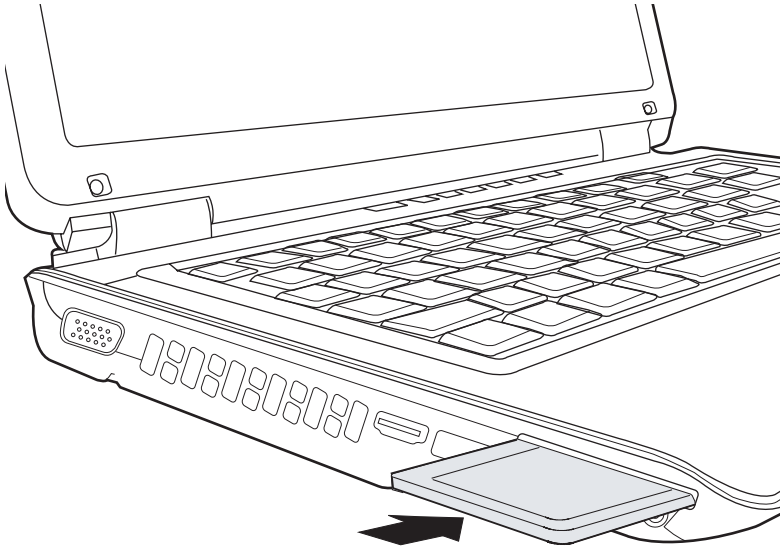

Figure 8-1 Inserting the ExpressCard

After inserting the card, refer to the card's documentation and check the configuration in Windows® to make sure it is appropriate for your card.

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Removing an ExpressCard

- *Before removing an ExpressCard, make sure that any applications or system services do not use the card.*
- *Be sure to disable the ExpressCard prior to removing it. Otherwise, the system may be fatally damaged.*

To remove the ExpressCard, follow the steps below.

1. Click the **Safety Remove Hardware and Eject Media** icon on the Task Bar.
2. Click the ExpressCard you want to remove.
3. Press the ExpressCard once to extend it.
4. Grasp the extended ExpressCard, and remove it.

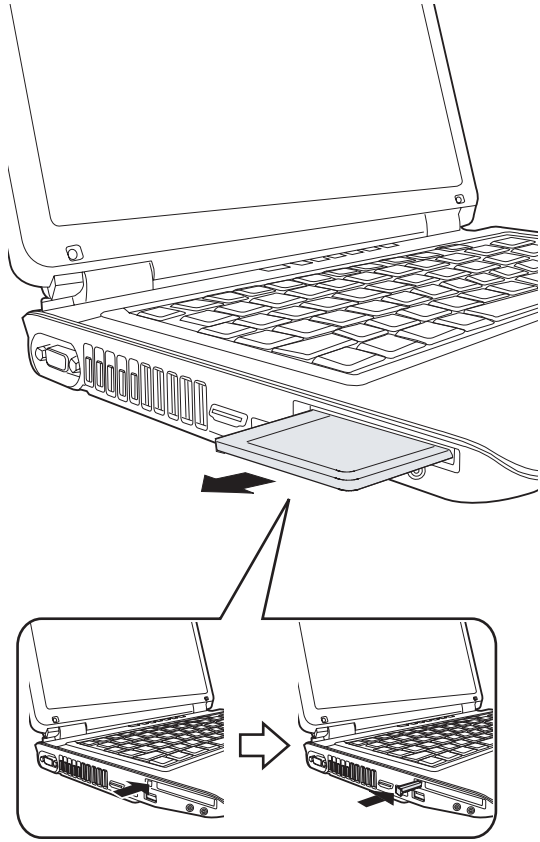

Figure 8-2 Removing the ExpressCard

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Memory cards SD/SDHC/MMC/MEMORY STICK / MEMORY STICK PRO/xD

The computer is equipped with a multiple digital media card slot that can accommodate SD/SDHC/MMC/MEMORY STICK/ MEMORY STICK PRO/xD memory cards. These memory cards let you easily transfer data from devices, such as digital cameras and Personal Digital Assistants, which use flash-memory.

Card Type	Capacities
SD	up to 2GB
SDHC	up to 16GB
MMC	up to 2GB
MEMORY STICK	up to 128MB, 256MB (128MB x 2)
MEMORY STICK PRO	up to 4GB
xD	up to 2GB

Keep foreign objects out of the memory card slot. A pin or similar object can damage the computer's circuitry.

Do not format a memory card with Windows® as it might result in that card not being able to be used with some peripheral devices.

Do not insert Memory Stick Duo/PRO Duo into the slot without the MEMORY STICK adapter. Data may be lost or damaged if you use any card other than those supported.

The card is designed so that it can be inserted only one way. Do not try to force the card into the slot.

For more details on using memory cards, see manuals accompanying the cards.

The Logo of SD memory card is .

The Logo of SDHC memory card is .

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Installing a memory card

To install a memory card:

1. Insert the memory card.
2. Press gently to ensure a firm connection.

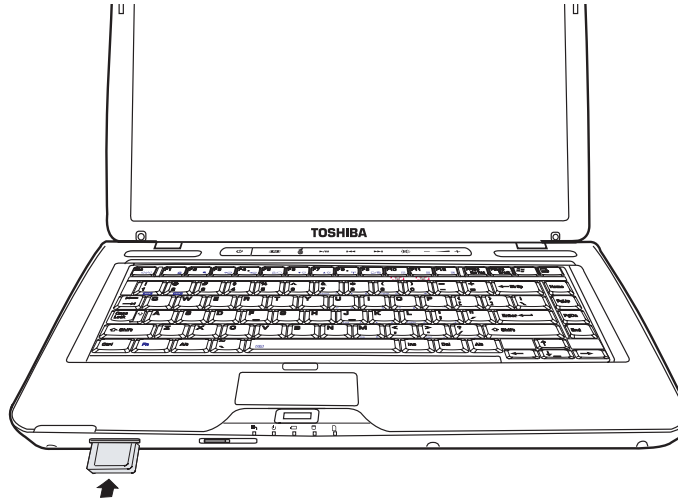

Figure 8-3 Inserting a memory card

Be sure the memory card is oriented properly before you insert it. If Windows® fails to read the card, remove it then re-insert it.

The multiple digital media card slot only accepts one type of card at a time. Do not attempt to install more than one card as you risk damaging either the cards themselves or the computer.

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Removing a memory card

To remove a memory card, follow the steps below:

1. Click the **Safely Remove Hardwareand Eject Media** icon on the Taskbar.
2. Select a device, then click the **Stop** button. A confirmation dialog may appear, depending on how the device is registered with the system; if so, confirm that you want to remove the device.
3. Gently press the memory card inside the socket to eject it.
4. Grasp the card and remove it.

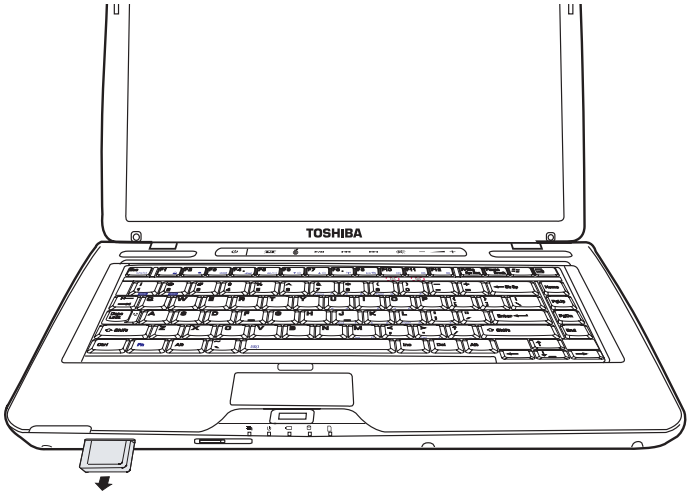

Figure 8-4 Removing a memory card

- *Make sure the memory card indicator is out before you remove the card or turn off the computer's power. If you remove the card or turn off the power while the computer is accessing the card you may lose data or damage the card.*
- *Do not remove the card while the computer is in Sleep or Hibernation mode. The computer could become unstable or data in the memory card could be lost.*
- *Do not turn off or place the computer into either Sleep Mode or Hibernation Mode while data is being transferred to or from the memory card. The system may become unstable or data in the memory card may be lost.*

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Memory card care

Set the write-protect switch to the lock position, if you do not want to record data.

1. Do not write to a memory card if the battery power is low. Low power could affect writing accuracy.
2. Do not remove a memory card while read/write is in progress.
3. The memory card is designed so that it can be inserted only one way. Do not try to force the card into the slot.
4. Do not leave a memory card partially inserted in the slot. Press the memory card until you hear it click into place.
5. Do not twist or bend memory cards.
6. Do not expose memory cards to liquids or store in humid areas or lay media close to containers of liquid.
7. After using a memory card, return it to its case.
8. Do not touch the metal part or expose it to liquids or let it get dirty.

Memory expansion

You can install additional memory in the computer's memory module socket to increase the amount of RAM. This section describes how to install and remove a memory module.

- *Use only memory modules approved by TOSHIBA.*
- *Do not try to install or remove a memory module under the following conditions. You can damage the computer and the module. Also, data will be lost.*
  a. *The computer is turned on.*
  b. *The computer was shut down using the Sleep Mode or Hibernation Mode.*
- *When incorrect memory is inserted, please refer to Memory expansion section in Chapter 9, Troubleshooting, for details.*
- *Expansion memory is a precision electronic component that may be fatally damaged by static electricity. Since the human body has slight static electricity, be sure to discharge static electricity from your body before installing an expansion memory module. To discharge your body's static electricity, simply touch any metal close to you with bare hands.*

Use a point size 1 Phillips screwdriver to remove and fasten the screws. Use of an incorrect screwdriver can damage the screw heads.

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Installing a memory module

Follow the steps below to install a memory module.

1. Set the computer to boot mode and turn off the power.
2. Remove all cables connected to the computer.
3. Turn the computer upside down and remove the battery pack (refer to Chapter 6, *Power and Power-Up Modes*).
4. Loosen the screws securing the memory module cover.
5. Slide your fingernail or a thin object under the cover and lift it off.

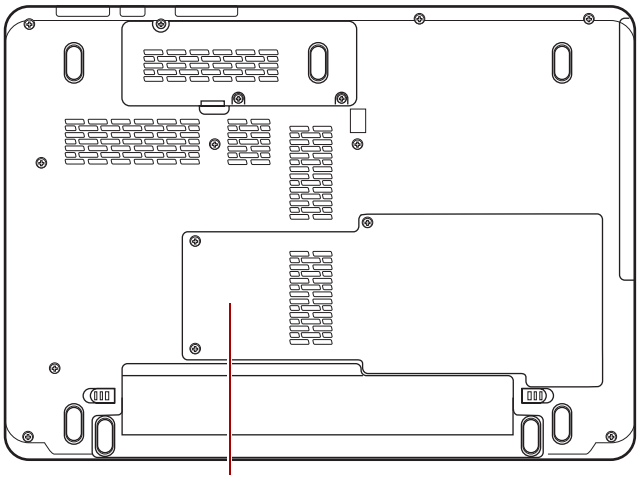

Figure 8-5 Removing the memory module cover

6. Lift one side of the insulator sheet and fit the module's connectors into the computer's connectors at about a 45 degree angle. Press the module carefully to ensure a firm connection.

Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.

Slot A is reserved for main memory. Slot B is for expanded memory. If only one memory module is installed, use Slot A. Slot A is lower than slot B.

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7. Push the module down so it lies flat. Latches on either side will click into place to secure the module.

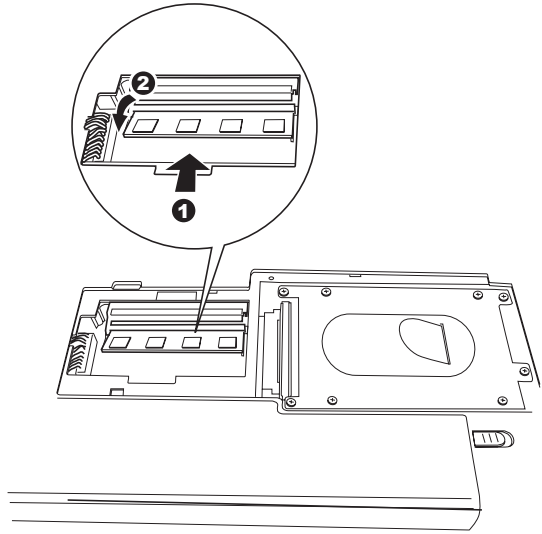

Figure 8-6 Installing the memory module

8. Seat the cover and secure it with the screws.
9. Replace the battery pack as described in Chapter 6, *Power and Power-Up Modes*.
10. Turn the power on and make sure the added memory is recognized: Go to **Control Panel** -> **System and Security** -> **System**.

Points to note about memory module error

If you install a memory module that is not compatible with the computer, the Power indicator will flash (on for 0.5 seconds, off for 0.5 seconds) in the following ways:

- If there is only an error in Slot A: repeatedly flashes orange twice, then blue.
- If there is only an error in Slot B: repeatedly flashes orange, then blue twice.
- If there is an error in Slot A and in Slot B: repeatedly flashes orange twice, then blue twice.

In all instances you should shut down the computer and remove the incompatible module(s)

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Removing a memory module

To remove the memory module, make sure the computer is in boot mode then:

1. Be sure the power is off and all cables are disconnected from thecomputer.
2. Turn the computer upside down and remove the battery and the screws securing the memory module cover.
3. Slide your fingernail or a thin object under the cover and lift it off.
4. Lift one side of the insulator and push the latches to the outside to release the module. A spring will force one end of the module up.
5. Grasp the module by the sides and pull it out.

- *If you use the computer for a long time, the memory modules will become hot. In this case, let the memory modules cool to room temperature before you replace them. Or you will get burnt if you touch any of them.*
- *Do not touch the connectors on the memory module or on the computer. Debris on the connectors may cause memory access problems.*

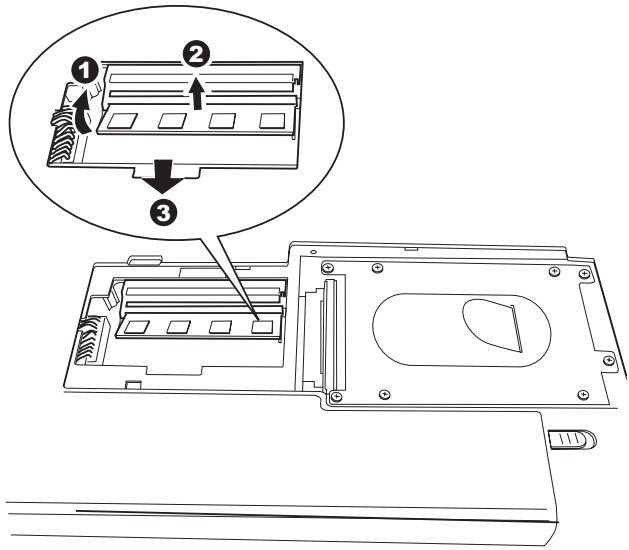

Figure 8-7 Removing the memory module

6. Seat the cover and secure it with screws and replace the battery pack.

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Additional battery pack

You can increase the portability of the computer with additional battery packs. If you're away from an AC power source and your battery runs low, you can replace it with a freshly charged battery. Refer to Chapter 6, *Power and Power-Up Modes*.

Additional AC adaptor

If you frequently transport the computer between different sites such as your home and office, purchasing an AC adaptor for each location will reduce the weight and bulk of your carrying load.

External monitor

An external analog monitor can be connected to the external monitor port on the computer. The computer supports several video modes. Refer to Appendix B, *Display Controller*. To connect a monitor, follow the steps below.

1. Turn the computer off.
2. Connect the monitor to the external monitor port.
3. Turn the monitor's power on.
4. Turn the computer on.

When you turn on the power, the Windows® Bootup screen (Windows® Logo) appears on the display device.

However, the Windows® Desktop appears on a display device that you used last time to shut down your PC, if the display device exists when you turn on the power.

To change the display settings, press **Fn+F5**. If you disconnect the monitor before you turn the computer off, be sure to press **Fn+F5** to switch to the internal display. Refer to Chapter 5, *The Keyboard*, for details on using hot keys to change the display setting.

When displaying the desktop on an external analog monitor, the desktop is sometimes displayed at the center of the monitor with black bars around the desktop (with small size). At that time, please read the monitor's manual and set the display mode supported by the monitor, it will then be displayed with a suitable size and correct aspect ratio.

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HDMI

A HDMI monitor can be connected to the HDMI out port on the computer. 1080p, 1080i, 720p, 576p and 480p signal formats can be supported. But actual signal format you can use depends on HDMI monitor. To connect monitor, follow the steps as detailed below:

As the port operation of all HDMI (High-Definition Multimedia Interface) monitors has not been confirmed, some HDMI monitors may not function properly.

1. Plug one end of the HDMI cable into the HDMI port of the HDMI device.

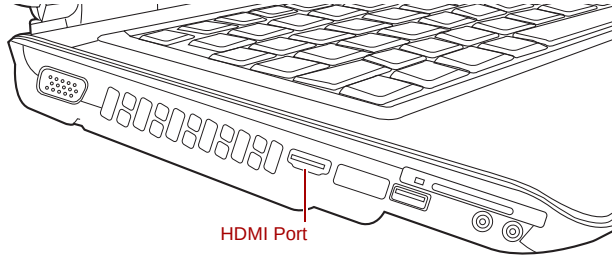

Figure 8-8 Connecting a HDMI cable

2. Plug the other end of the HDMI cable into the HDMI out port on your computer.

Setting for display video on HDMI

To view video on the HDMI device, be sure to configure the following settings otherwise you may find that nothing is displayed.

Be sure to use the FN + F5 hot keys to select the display device before starting to play video.

- *Do not change the display device under the following conditions.*
- *While a televsion or external monitor is connected to the HDMI port and the display output device is set to HDMI.*
- *While a television or external monitor is connected to the HDMI port and you connect the television, external monitor or external sound device to another port.*
- *While playing video.*
- *While data is being read or written.*
- *While communication is being carried out.*
- *When you unplug the HDMI cable and re-plug it in please wait at least 5 seconds before you replug the HDMI cable again.*
- *When you change the display output or unplug/re-plug the HDMI cable the sound output device and the display output device may be changed automatically by the system.*

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Settings for audio on HDMI

To set the audio device to use the HDMI, follow the steps below.

1. Click Start.
2. Click Control Panel.
3. Click Hardware and Sound.
4. Click Sound.
5. Click Digital Output Device (HDMI).
6. Click the Set Default Device button.

To set the audio device to use internal speaker, follow the steps below.

1. Click Start.
2. Click Control Panel.
3. Click Hardware and Sound.
4. Click Sound.
5. Click Speakers.
6. Click the Set Default Device button.

Security lock

Security locks enable you to anchor your computer to a desk or other heavy object to help prevent unauthorized removal of the computer.

The computer has a security lock slot on the left side. Attach one end of the cable to a desk and the other end to the security lock slot.

1. Turn the computer so the left side faces you.
2. Align the holes for the security lock and attach the lock.

Figure 8-9 Security lock

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Chapter 9

Troubleshooting

TOSHIBA designed the computer for durability. However, should problems occur, following the procedures in this chapter can help to determine the cause.

All readers should become familiar with this chapter. Knowing what might go wrong can help prevent problems from occurring.

Problem solving process

Resolving problems will be much easier if you observe the following guidelines:

- Stop immediately when you recognize a problem exists. Further action may result in data loss or damage. You may destroy valuable problem related information that can help solve the problem.
- Observe what is happening. Write down what the system is doing and what actions you performed immediately before the problem occurred. If you have a printer attached, print a copy of the screen using PrtSc.

The questions and procedures offered in this chapter are meant as a guide, they are not definitive problem solving techniques. Many problems can be solved simply, but a few may require help from your dealer. If you find you need to consult your dealer or others, be prepared to describe the problem in as much detail as possible.

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Preliminary checklist

Consider the simplest solution first. The items in this checklist are easy to fix and yet can cause what appears to be a serious problem.

- Make sure you turn on all peripheral devices before you turn on the computer. This includes your printer and any other external device you are using.
- Before you attach an external device, turn the computer off. When you turn the computer back on it recognizes the new device.
- Make sure all options are set properly in the setup program.
- Check all cables. Are they correctly and firmly attached? Loose cables can cause signal errors.
- Inspect all connecting cables for loose wires and all connectors for loose pins.
- Check that your CD/DVD/CD-RW is correctly inserted.

Make notes of your observations and keep them in a permanent error log. This will help you describe your problems to your dealer. If a problem recurs, the log will help you identify the problem faster.

Analyzing the problem

Sometimes the system gives clues that can help you identify why it is malfunctioning. Keep the following questions in mind:

- Which part of the system is not operating properly: keyboard, hard disk drive, optical media drive, display. Each device produces different symptoms.
- Is the operating system configuration set properly? Check the configuration options.
- What appears on the display screen? Does it display any messages or random characters? Print a copy of the screen if you have a printer attached. Look up the messages in the software and operating system documentation. Check that all connecting cables are correctly and firmly attached. Loose cables can cause erroneous or intermittent signals.
- Do any indicators light? Which ones? What color are they? Do they stay on or blink? Write down what you see.
- Do you hear any beeps? How many? Are they long or short? Are they high pitched or low? Is the computer making any unusual noises? Write down what you hear.

Record your observations so you can describe them to your dealer.

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Software	The problems may be caused by your software or disc. If you cannot load a software package, the media may be damaged or the program might be corrupted. Try loading another copy of the software. If an error message appears while you are using a software package, check the software documentation. These documents usually include a problem solving section or a summary of error messages. Next, check any error messages in the operating system documentation.
Hardware	If you cannot find a software problem, check your hardware. First run through the items in the preliminary checklist above. If you still cannot correct the problem, try to identify the source. The next section provides checklists for individual components and peripherals.

Before using a peripheral device or application software that is not an authorized Toshiba part or product, make sure the device or software can be used with your computer. Use of incompatible devices may cause injury or may damage your computer.

Hardware and system checklist

This section discusses problems caused by your computer's hardware or attached peripherals. Basic problems may occur in the following areas:

- System start-up
- Self test
- Power
- Password
- Keyboard
- Internal display panel
- Hard disk drive
- DVD Super Multi Double Layer drive
- USB floppy diskette drive
- ExpressCard
- SD/SDHC memory card
- Pointing Device
- Fingerprint Sensor
- USB device
- eSATA device
- Additional memory module
- Sound system
- Volume control dial
- External monitor
- Modem
- LAN
- Wireless LAN
- Bluetooth
- Recovery Discs

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System start-up

When the computer does not start properly, check the following items:

- Self Test
- Power Sources
- Power-on Password

Self test

When the computer starts up, the self test will be run automatically, and the following will be displayed:

```
TOSHIBA
Leading Innovation >>>
```

This message remains on the screen for a few seconds.

If the self test is successful, the computer tries to load the operating system, depending on how the Boot Priority is set in the TOSHIBA HW Setup program.

If any of the following conditions are present, the self test failed:

- The computer stops and does not proceed to display information or messages except the TOSHIBA logo.
- Random characters appear on the screen, and the system does not function normally.
- The screen displays an error message.

Turn off the computer and check all cable connections. If the test fails again, contact your dealer.

Power

When the computer is not plugged into an AC outlet, the battery pack is the primary power source. However, your computer has a number of other power resources, including an intelligent power supply and a Real Time Clock battery.These resources are interrelated and any one could affect apparent power problems. This section provides checklists for AC power and the battery. If you cannot resolve a problem after following them, the cause could lie with another power resource. In such a case, contact your dealer.

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Overheating power down

If the computer's internal temperature becomes too high, the computer will automatically enter Hibernation Mode or Sleep Mode and shut down. If the computer has reached room temperature and still does not start, or if it starts but shuts down quickly contact your dealer.

Problem	Procedure
Computer shuts down and **DC IN** indicator blinks orange.	Leave the computer off until the DC IN indicator stops blinking.

It is recommended to leave the computer off until the interior reaches room temperature even though the **DC IN** *indicator stops blinking.*

	If the computer has reached room temperature and it still does not start, or if it starts but shuts down quickly, contact your reseller, dealer or service provider.
Computer shuts down and its **DC IN** indicator is flashing white.	This indicates a problem with the heat dispersal system - you should contact your reseller, dealer or service provider.

AC power

If you have trouble turning on the computer with the AC adaptor connected, check the Battery indicator. Refer to Chapter 6, *Power and Power-Up Modes*, for more information.

Problem	Procedure
AC adaptor doesn't power the computer	Check the connections. Make sure the cord is firmly connected to the computer and a power outlet.
	Check the condition of the cord and terminals. If the cord is frayed or damaged, replace it. If the terminals are soiled, wipe them with cotton or a clean cloth.
	If the AC adaptor still does not power the computer, contact your dealer.

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Battery

If you suspect a problem with the battery, check the **Battery** indicator. For information on indicator and battery operation refer to Chapter 6, *Power and Power-Up Modes*.

Problem	Procedure
Battery doesn't power the computer	The battery may be discharged. Connect the AC adaptor to charge the battery.
Battery doesn't charge when the AC adaptor is attached (**Battery** indicator does not glow orange.**)**	If the battery is completely discharged, it will not begin charging immediately. Wait a few minutes. If the battery still does not charge, make sure the outlet of the AC adaptor is supplying power. Test it by plugging in an appliance.
	Check whether the battery is hot or cold to the touch. If the battery is too hot or too cold, it will not charge properly. Let it reach room temperature.
	Unplug the AC adaptor and remove the battery to make sure the terminals are clean. If necessary wipe them with a soft dry cloth dipped in alcohol. Connect the AC adaptor and replace the battery. Make sure it is securely seated. Check the **Battery** indicator. If it does not glow, let the computer charge the battery for at least 20 minutes. If the **Battery** indicator glows after 20 minutes, let the battery continue to charge at least another 20 minutes before turning on the computer. If the indicator still does not glow, the battery may be at the end of its operating life. Replace it. If you do not think the battery is at the end of its operating life, see your dealer.
Battery doesn't power the computer as long as expected	If you frequently recharge a partially charged battery, the battery might not charge to its full potential. Fully discharge the battery, then try to charge it again.
	Check the power consumption settings in the Power Options. Consider using a power saving feature.

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Disposing of PC and PC batteries

- Discard this PC in accordance with applicable laws and regulations. For further information, contact your local government.
- This PC contains rechargeable batteries. After repeated use, the batteries will finally lose their ability to hold a charge and you will need to replace them. Under certain applicable laws and regulation, it may be illegal to dispose of old batteries by placing them in the trash.
- Please be kind to our shared environment. Check with your local government authority for details regarding where to recycle old batteries or how to dispose of them properly. This product contains mercury. Disposal of this material may be regulated due to environmental considerations. For disposal, reuse or recycling information, please contact your local government.
- If your hard disk or other storage media contains sensitive data, you should be aware that standard deletion procedures do not remove data from the media. These standard deletion procedures include:
  - Selecting Delete for a target file
  - Putting files in the Recycle Bin and emptying the Recycle Bin
  - Reformatting the media
  - Reinstalling an operating system from the recovery media

  The procedures above delete only the initial part of the data used for file management. This makes the file invisible to the operating system, but the data can still be read by specialized utilities. If you dispose of the PC, please delete all the data on its hard disk drive. Doing so prevents unauthorized use of such data. To ensure your data is not used for unauthorized purposes, you can:
  - Physically destroy the hard disk drive
  - Use a proven specialized utility to overwrite all data
  - Take the hard disk drive to a professional deletion service

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Real Time Clock

Problem	Procedure
The BIOS setting and system date/time are lost.	Charge in the RTC battery is exhausted or getting low. You will need to set the date and time in the BIOS setup screen using the following procedure 1. Press **F2** key. BIOS setup will boot up. 2. Set the date in **System Date**. 3. Set the time in **System Time**. 4. Press **F10** key. Confirmation message will appear. 5. Press **Enter** key. BIOS setup will terminate and the computer will be rebooted.

After configuring the time and date for the Real Time Clock battery, we recommend that you turn the power status of your computer to "ON" so that the Real Time Clock battery is charged.

Keyboard

Keyboard problems can be caused by your setup configuration. For more information refer to Chapter 5, *The Keyboard*.

Problem	Procedure
Some letter keys produce numbers	Check that the numeric keypad overlay is not selected. Press **Fn + F11** and try typing again.
Output to screen is garbled	Make sure the software you are using is not remapping the keyboard. Remapping involves reassigning the meaning of each key. Refer to your software's documentation. If you are still unable to use the keyboard, consult your dealer.

LCD panel

Apparent LCD problems may be related to the computer's setup.

Problem	Procedure
No display	Press hot keys **Fn + F5** to change the display priority, to make sure it is not set for an external monitor.

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Problem	Procedure
Problems above remain unresolved or other problems occur	Refer to your software's documentation to determine if the software is causing the difficulty.
	Run the diagnostic test. Contact your dealer if the problems continue.
The screen blinks while playing a DVD	If you see the screen blinking while playing DVD wth subtitle on at Media Player, please use TOSHIBA DVD Player or Media Center to play DVD.

Hard disk drive

Problem	Procedure
Computer does not boot from hard disk drive	There may be a problem with your operating system files. Refer to your operating system documentation.
Slow performance	Your files may be fragmented. Run disk Defragmenter to check the condition of your files and disk. Refer to your operating system documentation or online help for information on running disk Defragmenter.
	As a last resort, reformat the hard disk. Then, reload the operating system and other files. If problems persist, contact your dealer.

Solid State Drive

Problem	Procedure
Computer does not boot from solid state drive	There may be a problem with your operating system files. Refer to your operating system documentation.

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Recovery Discs

Problem	Procedure
The following message appears when executing Recovery Media Creator. “The Recovery Media Creator can not be launched because there is no recovery partition.”	You will see this message if you have previously chosen to remove the partition and are trying to create “Recovery Media”. When there is no recovery partition, the Recovery Media Creator cannot make Recovery Media. However, if you have already created a “Recovery Media”, you can use it to restore the recovery partition. Simply follow the instructions in “Restoring the preinstall software from your creating Recovery Media” section in this manual. You will be directed to select “Restore Original Factory Image” from the drop-down menu. If you have not created “Recovery Media”, please contact TOSHIBA support for assistance.

DVD Super Multi Double Layer drive

For more information, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
You cannot access a CD/DVD in the drive	Make sure the drive’s drawer is securely closed. Press gently until it clicks into place.
	Open the drawer and make sure the CD/DVD is properly seated. It should lie flat with the label facing up.
	A foreign object in the drawer could block laser light from reading the CD/DVD. Make sure there is no obstruction. Remove any foreign object.
	Check whether the CD/DVD is dirty. If it is, wipe it with a clean cloth dipped in water or a neutral cleaner. Refer to the *Media care* section in Chapter 4, *Operating Basics*, for details on cleaning.

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Problem	Procedure
Some CD/DVDs run correctly, but others do not.	The software or hardware configuration may be causing a problem. Make sure the hardware configuration matches your software's needs. Check the CD/DVD documentation.
	Check the type of CD/DVD you are using. The drive supports: DVD-ROM: DVD-ROM, DVD-Video CD-ROM: CD-DA, CD-Text, Photo CD (single/multi-session), CD-ROM Mode 1, Mode 2, CD-ROM XA Mode 2 (Form1, Form2), Enhanced CD (CD-EXTRA), Addressing Method 2 ■ DVD Super Multi Double Layer drive Recordable DVD: DVD-R/-R DL, DVD+R/+R DL, DVD-RW, DVD+RW, DVD-RAM
	Check the region code on the DVD. It must match that on the DVD Super Multi Double Layer drive. Region codes are listed in the *Optical Disc Drive* section in Chapter 2, *The Grand Tour*.
Cannot write correctly	If you have trouble writing, make sure you are observing the following precautions: Use only media recommended by TOSHIBA Do not use the mouse or keyboard during writing. Use only the software supplied with the computer for recording. Do not run or start other software during writing. Do not jar the computer during writing. Do not connect/disconnect external devices or install/remove internal cards during writing. If problems persist, contact your dealer.

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USB floppy diskette drive

For more information, refer to Chapter 8, *Optional Devices*.

Problem	Procedure
Drive does not operate	Check the connection between the computer and the drive to ensure that it is properly attached.
Some programs run correctly but others do not	The computer's software or hardware configuration may be causing a problem - ensure that these configurations match your requirements (refer to any relevant documentation, for example that supplied with any software in use, for further information).
You cannot access the external floppy diskette drive	Try another floppy diskette in the drive - if you are able to access this disk then it indicates the original disk and not the drive is probably causing the problem. If you are still unable to resolve the problem, contact your reseller, dealer or service provider.

Memory card: Secure Digital (SD), Secure Digital High Capacity (SDHC), Memory Stick (MS), Memory Stick Pro (MS Pro), MultiMediaCard (MMC), and xD-Picture Card (xD)

For more information, refer to Chapter 8, *Optional Devices*.

Problem	Procedure
Memory card error occurs	Restart the memory card to make sure it is firmly connected. Check the card's documentation.
You cannot write to the memory card	Make sure the card is not write protected.
You cannot read a file	Make sure the target file is on the memory card inserted in the slot. If problems persist, contact your dealer.

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Pointing device

If you are using a USB mouse, also refer to the USB section in this chapter and to your mouse documentation.

TouchPad

Problem	Procedure
On-screen pointer does not respond to Pad operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to return to its normal shape and try again to move it.
Double-tapping does not work	Try changing the double-click speed setting in the mouse control utility. 1. To access this utility, click **Control Panel** -> **Hardware and Sound** -> **Mouse** (under **Devices and Printers**) 2. Within the Mouse Properties window, click the **Buttons** tab. 3. Set the double-click speed as required and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. To access this utility, click **Control Panel** -> **Hardware and Sound** -> **Mouse** (under **Devices and Printers**) 2. Within the Mouse Properties window, click the **Pointer Options** tab. 3. Set the pointer speed as required and click **OK**.

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Problem	Procedure
The response of the TouchPad is too sensitive	Adjust the touch sensitivity. 1. To access this utility, click **Control Panel** -> **Hardware and Sound** -> **Mouse** (under **Devices and Printers**) 2. Within the Mouse Properties window, click the **Advanced** tab. 3. Click the **Advanced feature settings...** button. 4. **Advanced feature settings** is displayed. 5. Within the Pointer speed and tapping settings, click **Settings...** button. 6. Detailed TouchPad settings window is displayed. 7. Move the slider bar to adjust the sensitivity in the Touch Sensitivity. 8. Click the **OK** button. 9. Click the **OK** button on **Advanced feature setting** screen. If you are still unable to resolve the problem, contact your reseller, dealer, or service provider.

USB

Also refer to your USB device's documentation.

Problem	Procedure
USB device does not work	Check for a firm cable connection between the USB port on the computer and the USB device.
	Make sure the USB device drivers are properly installed. Refer to your Windows® 7 documentation for information on checking the drivers. If problems persist, contact your dealer.

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USB mouse

Problem	Procedure
On-screen pointer does not respond to mouse operation	The system might be busy. If the pointer is shaped as an hourglass, wait for it to resume its normal shape and try again to move it.
	Make sure the mouse is properly connected to the USB port.
Double-clicking does not work	Try changing the double-click speed setting in the mouse control utility. 1. To access this utility, click **Control Panel** -> **Hardware and Sound** -> **Mouse** (under **Devices and Printers**) 2. Within the Mouse Properties window, click the **Buttons** tab. 3. Set the double-click speed as required and click **OK**.
The mouse pointer moves too fast or too slow	Try changing the speed setting in the mouse control utility. 1. To access this utility, click **Control Panel** -> **Hardware and Sound** -> **Mouse** (under **Devices and Printers**) 2. Within the Mouse Properties window, click the **Pointer Options** tab. 3. Set the pointer speed as required and click **OK**.
The mouse pointer moves erratically	The mouse might be dirty. Refer to your mouse documentation for instructions on cleaning. If problems persist, contact your dealer.

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USB Sleep and Charge function

Problem	Procedure
I cannot use the “USB Sleep and Charge function”.	The setting of “USB Sleep and Charge function” may be [Disabled]. Change the setting to [Enabled] in the TOSHIBA USB Sleep and Charge utility..
	When there is a current overflow of the external device connected to the compatible port, USB bus power (DC5V) supply may be stopped for safety reasons. When this happens, disconnect an external device if some external devices are connected. After that, turn the power of the computer ON/OFF to restore the function. If this function can not be still used even if only one external device is connected, stop using the external device because its current is over the acceptable value of this computer.
	Some external devices may not be able to use the “USB Sleep and Charge function”. In this case, please try one or more of the following methods. ■ Change the Power supply mode settings in the TOSHIBA USB Sleep and Charge Utility. ■ Turn OFF the computer while external devices are connected. ■ Connect external devices after turning OFF of the computer. If this function can not be still used, change the setting to [Disabled] in the BIOS Setup and stop using this function.
The battery depletes quickly even when I turned OFF the power of the computer.	When “USB Sleep and Charge function” is set to [Enable], USB bus power (DC5V) will be supplied to the external device connected to the compatible port. If external device is connected to the compatible port when the AC adaptor is not connected to the computer, the battery of the computer will be depleted even when the power of the computer is turned OFF. Connect the AC adaptor to the computer or change the “USB Sleep and Charge function” setting the [Disable] or if there is a USB port that does not have the USB Sleep and Charge function-compatible icon (⚡), use that port.

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Problem	Procedure
External devices connected to the compatible ports do not work when connected to a compatible port.	Some external devices may not work when connected to a compatible port when the “USB Sleep and Charge function” is [Enabled] in the TOSHIBA USB Sleep and Charge Utility. Reconnect the external device after turning ON the computer. If the external device still doest not work, connect device to an USB port that does not have the USB Sleep and Charge function-compatible icon (⚡) or change the “USB Sleep and Charge function” setting to [Disabled] in the TOSHIBA USB Sleep and Charge Utility.
The “USB WakeUp function” does not work.	When “USB Sleep and Charge function” is set to [Enabled] in theTOSHIBA USB Sleep and Charge Utility, the “USB WakeUp function” does not work for ports that support the USB Sleep and Charge function. In that case, use an USB port that does not have the USB Sleep and Charge function-compatible icon (⚡) or change the “USB Sleep and Charge function” setting to [Disabled] in the TOSHIBA USB Sleep and Charge Utility.

Memory expansion

Refer also to Chapter 8, *Optional Devices*, for information on installing memory modules.

Problem	Procedure
The computer hangs up	Make sure the memory module installed in the expansion slot is compatible with the computer. If an incompatible module has been installed, follow the steps below. 1. Turn off the power. 2. Disconnect the AC adaptor and all peripheral devices. 3. Remove the battery pack. 4. Remove the memory module. 5. Replace the battery pack and/or connect the AC adaptor. 6. Turn on the power. If problems persist, contact your dealer.

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Sound system

Refer also to documentation for your audio devices.

Problem	Procedure
No sound is heard	Check the software volume settings.
	Make sure the headphone connection is secure. If problems persist, contact your dealer.

External Monitor

Refer also to Chapter 8, *Optional Devices*, and to your monitor's documentation.

Problem	Procedure
Monitor does not turn on	Make sure that the external monitor's power switch is on. Confirm that the external monitor's power cable is plugged into a working power outlet.
No display	Try adjusting the contrast and brightness controls on the external monitor.
	Press hot keys **Fn + F5** to change the display priority and make sure it is not set for the internal display.
Display error occurs	Check that the cable connecting the external monitor to the computer is attached firmly. If problems persist, contact your dealer.

Modem

Problem	Procedure
Communication software can't initialize modem	Make sure the computer's internal modem settings are correct. Refer to Phone and Modem Properties in the Control Panel.
You can hear a dial tone but can't make a call	If the call is going through a PBX machine, make sure the communication application's tone dial detection feature is disabled. You can also use the ATX command.
You place a call, but a connection can't be made	Make sure the settings are correct in your communications application.

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Problem	Procedure
After making a call you can't hear a ring	Make sure the tone or pulse selection in your communications application is set correctly. You can also use the ATD command.
Communication is cut off unexpectedly	The computer will automatically cut off communication when connection with the carrier is not successful for a set time interval. Try lengthening this time interval.
A CONNECT display is quickly replaced by NO CARRIER	Check the error control setting in your communications application. You can also use the AT\N command.
Character display becomes garbled during a communication	In data transmission, make sure the parity bit and stop bit settings correspond with those of the remote computer. Check the flow control and communication protocol.
You cannot receive an incoming call	Check the rings before auto answer setting in your communications application. You can also use the ATS0 command. If problems persist, contact your dealer.

LAN

Problem	Procedure
Cannot access LAN	Check for a firm cable connection between the LAN jack and the LAN hub. If problems persist, consult your LAN administrator.

Wireless LAN

If the following procedures do not restore LAN access, consult your LAN administrator. For more information on wireless communication, refer to Chapter 4, *Operating Basics*.

Problem	Procedure
Cannot access Wireless LAN	Make sure the computer's wireless communication switch is set to on. If problems persist, contact your LAN administrator.

The Wireless LAN feature is not available on all models.

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Fingerprint Sensor

Problem	Procedure
Reading of the fingerprint was not successful	Please try again using the correct posture. Refer to *Using the fingerprint sensor* in Chapter 4, *Operating Basics*. Try the recognition process again using another enrolled finger.
The fingerprint cannot be read due to injuries to the finger	Try the recognition process again using another enrolled finger. If fingerprints from all the enrolled fingers cannot be read, please logon by using the keyboard to input the password for the time being. If problems persist, contact your dealer.
Fingerprint Pre-OS feature or Single Sign On feature cannot be enabled	Please use TOSHIBA HW Setup to register the User Password if it was not registered.
Fingerprint Pre-OS feature does not work	Make sure you have an enrolled fingerprint in your Windows® account. Set the User Password by using TOSHIBA HW Setup and restart the system. Make sure place a checkmark in “Enable Pre-OS Fingerprint Authentication” on the TrueSuite Access Manager setting.

ExpressCard

Refer also to Chapter 8, *Optional Devices*.

Problem	Procedure
ExpressCard error occurs	Reseat the ExpressCard to make sure it is firmly connected.
	Make sure the connection between the external device and the card is firm.
	Check the card’s documentation. If problems persist, contact your dealer.

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TOSHIBA support

If you require any additional help using your computer or if you are having problems operating the computer, you may need to contact TOSHIBA for additional technical assistance.

Before you call

Some problems you experience may be related to software or the operating system, it is important to investigate other sources of assistance first. Before contacting TOSHIBA, try the following:

- Review troubleshooting sections in the documentation for software and peripheral devices.
- If a problem occurs when you are running software applications, consult the software documentation for troubleshooting suggestions. Call the software company's technical support for assistance.
- Consult the dealer you purchased your computer and/or software from. They are your best sources for current information and support.

Where to write

If you are still unable to solve the problem and suspect that it is hardware related, write to TOSHIBA at the location listed in the enclosed warranty booklet or visit *www.toshiba-europe.com* on the Internet.

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Chapter 10

Legal Footnotes

This chapter states the Legal Footnotes information applicable to TOSHIBA computers. In the text in this manual, *XX is used to show which Legal Footnotes description is related to TOSHIBA computers. Description(s) related to this computer are marked with a blue *XX in this manual. Clicking on *XX will display the related description.

CPU

Central Processing Unit (“CPU”) Performance Legal Footnotes. CPU performance in your computer product may vary from specifications under the following conditions:

- use of certain external peripheral products
- use of battery power instead of AC power
- use of certain multimedia, computer generated graphics or video applications
- use of standard telephone lines or low speed network connections
- use of complex modeling software, such as high end computer aided design applications
- use of several applications or functionalities simultaneously
- use of computer in areas with low air pressure (high altitude > 1,000 meters or > 3,280 feet above sea level)
- use of computer at temperatures outside the range of 5°C to 30°C (41°F to 86°F) or >25°C (77°F) at high altitude (all temperature references are approximate and may vary depending on the specific computer model - please refer to your computer documentation or visit the TOSHIBA website at *www.pcsupport.toshiba.com* for details).

CPU performance may also vary from specifications due to design configuration.

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Under some conditions, your computer product may automatically shutdown. This is a normal protective feature designed to reduce the risk of lost data or damage to the product when used outside recommended conditions. To avoid risk of lost data, always make back-up copies of data by periodically storing it on an external storage medium. For optimum performance, use your computer product only under recommended conditions. Read additional restrictions in your product documentation. Contact TOSHIBA technical service and support, refer to *TOSHIBA support* section in Chapter 9, *Troubleshooting* for more information.

64-Bit Computing.

64-bit processors are designed to take advantage of 32 and 64 bit computing.

64-bit computing requires that the following hardware and software requirements are met:

- 64-bit Operating System
- 64-bit CPU, Chipset and BIOS (Basic Input/Output System)
- 64-bit Device drivers
- 64-bit applications

Certain device drivers and/or applications may not be compatible with a 64- bit CPU and therefore may not function properly. A 32-bit version of the operating system is preinstalled on your computer unless explicitly stated that the operating system is 64-bit.

Memory (Main System)

Part of the main system memory may be used by the graphics system for graphics performance and therefore reduce the amount of main system memory available for other computing activities. The amount of main system memory allocated to support graphics may vary depending on the graphics system, applications utilized, system memory size and other factors. For computer's configured with 4 GB of system memory, the full system memory space for computing activities will be considerably less and will vary by model and system configuration.

Battery Life

Battery life may vary considerably depending on product model, configuration, applications, power management settings and features utilized, as well as the natural performance variations produced by the design of individual components. Published battery life numbers are achieved on select models and configurations tested by TOSHIBA at the time of publication. Recharge time varies depending on usage. Battery may not charge while computer is consuming full power.

After going through many charge and discharge cycles, the battery will lose its ability to perform at maximum capacity and will need to be replaced. This is a normal phenomenon for all batteries. To purchase a new battery pack, see the accessories information that is shipped with your computer.

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Hard Disk Drive (HDD) Capacity

1 Gigabyte (GB) means 109 = 1,000,000,000 bytes using powers of 10. The computer operating system, however, reports storage capacity using powers of 2 for the definition of 1 GB = 230 = 1,073,741,824 bytes, and therefore shows less storage capacity. Available storage capacity will also be less if the product includes one or more pre-installed operating systems, such as Microsoft Windows and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

LCD

Over a period of time, and depending on the usage of the computer, the brightness of the LCD screen will deteriorate. This is an intrinsic characteristic of LCD technology.

Maximum brightness is only available when operating in AC power mode. The screen will dim when the computer is operated on battery power and you may not be able to increase the brightness of the screen.

Graphics Processor Unit (“GPU”)

Graphics processor unit (“GPU”) performance may vary depending on product model, design configuration, applications, power management settings and features utilized. GPU performance is only optimized when operating in AC power mode and may decrease considerably when operating in battery power mode.

Total Available Graphics Memory is the total of, as applicable, Dedicated Video Memory, System Video Memory and Shared System Memory. Shared System Memory will vary depending on system memory size and other factors.

Wireless LAN

The transmission speed over the wireless LAN and the distance over which wireless LAN can reach may vary depending on surrounding electromagnetic environment, obstacles, access point design and configuration, and client design and software/hardware configurations. The actual transmission speed will be lower than the theoretical maximum speed.

The wireless adapter is based on a draft 2.0 release version of the IEEE 802.11n specification and; may not be full compatible with, or support some feature (e.g., security) of, certain Wi-Fi equipment.

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Copy Protection

Applicable copy protection standards included in certain media may prevent or limit recording or viewing of the media.

Images

All images are simulated for purposes of illustration.

Non-applicable Icons

Certain computer chassis are designed to accommodate all possible configurations for an entire product series. Therefore, please be aware that your selected model may not have all the features and specifications corresponding to all of the icons or switches shown on the computer chassis.

USB Sleep & Charge

The “USB Sleep & Charge function” may not work with certain external devices even if they are compliant with the USB specification. In those cases, turn the power of the computer ON to charge the device.

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Appendix A

Specifications

This appendix summarizes the computer's technical specifications.

Environmental Requirements

Conditions	Ambient temperature	Relative humidity
Operating	5°C (41°F) to 35°C (95°F)	20% to 80% (noncondensing)
Non-operating	-20°C (-4°F) to 65°C (149°F)	10% to 90% (noncondensing)
Wet-bulb temperature	26°C maximum	
Conditions	**Altitude (from sea level)**	
Operating	0 to 3,000 meters	
Non-operating	0 to 10,000 meters maximum	

Power Requirements

AC adaptor	100-240 volts AC 50 or 60 hertz (cycles per second)
Computer	19 V DC

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Built-in Modem

This information is applicable to the models equipped with a built-in modem.

Network control unit (NCU)	
Type of NCU	AA
Type of line	Telephone line (analog only)
Type of dialling	Pulse Tone
Control command	AT commands EIA-578 commands
Monitor function	Computer's speaker
Communication specifications	
Communication System	Data: Full duplex Fax: Half duplex
Communication protocol	Data ITU-T-Rec (Former CCITT) V.21/V.22/V.22bis/V.32/ V.32bis/V.34/V.90/V.92 Bell 103/212A Fax: ITU-T-Rec (Former CCITT) V.17/V.29/V.27ter/V.21 ch2
Communication Speed	Data transmission and reception 300/1200/2400/4800/7200/9600/12000/14400/ 16800/19200/21600/24000/26400/28800/31200/ 33600 bps Data reception only with V.90 28000/29333/30666/32000/33333/34666/36000/ 37333/38666/40000/41333/42666/44000/45333/ 46666/48000/49333/50666/52000/53333/54666/ 56000 bps Fax 2400/4800/7200/9600/12000/14400 bps
Transmitting level	-10 dBm
Receiving level	-10 to -40 dBm
Input/output impedance	600 ohms ±30%
Error correcting	MNP class 4 and ITU-T V.42
Data compression	MNP class 5 and ITU-T V.42bis
Power supply	+3.3V (supplied by computer)

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Appendix B

Display Controller

Display Controller

The display controller interprets software commands into hardware commands that turn particular pels on or off.

The controller is an advanced Video Graphics Array (VGA) that provides Super VGA (SVGA) and Extended Graphics Array (XGA) support for the internal LCD and external monitors.

A high-resolution external monitor connected to the computer can display up to 2048 horizontal and 1536 vertical pixels at up to 16M colors.

The display controller also controls the video mode, which uses industry standard rules to govern the screen resolution and the maximum number of colors that can be displayed on screen.

Software written for a given video mode will run on any computer that supports the mode.

The computer's display controller supports all SVGA and XGA modes, the most widely used industry standards.

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Appendix C

Wireless LAN

Card Specifications

Form Factor	PCI Express Mini Card
Compatibility	■ IEEE 802.11 Standard for Wireless LANs ■ Wi-Fi (Wireless Fidelity) certified by the Wi-Fi Alliance. The “Wi-Fi CERTIFIED” logo is a certification mark of the Wi-Fi Alliance.
Network Operating System	■ Microsoft® Windows® Networking
Media Access Protocol	■ CSMA/CA (Collision Avoidance) with Acknowledgement (ACK)
Data Rate	■ 54/48/36/24/18/12/9/6 Mb/s (IEEE 802.11a/g) ■ 11/5.5/2/1 Mb/s (IEEE 802.11 b)

The Wireless LAN feature is not available on all models.

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Radio Characteristics

Radio Characteristics of Wireless LAN Cards may vary according to:

- Country/region where the product was purchased
- Type of product

Wireless communication is often subject to local radio regulations. Although Wireless LAN wireless networking products have been designed for operation in the license-free 2.4GHz and 5GHz band, local radio regulations may impose a number of limitations to the use of wireless communication equipment.

R-F Frequency	■ Band 2.4GHz (2400~2497 MHz) for 802.11b/g/n (draft version) ■ Band gGHz (5150~5850 MHz) for 802.11a/n (draft version)
Modulation Technique	■ DSSS-CCK, DSSS-DQPSK, DSSS-DBPSK (IEEE 802.11b) ■ OFDM-BPSK, OFDM-QPSK, OFDM-16QAMOFDM-16QAM (IEEE 802.11a/g)

The range of the wireless signal is related to the transmit rate of the wireless communication device. Communications at a lower transmission rate may travel larger distances.

- The range of your wireless devices can be affected when the antennas are placed near metal surfaces and solid high-density materials.
- Range is also impacted due to “obstacles” in the path of the transmission that may either absorb or reflect the radio signal.

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Supported Frequency Sub-bands

Subject to the radio regulations that apply in the countries/regions, your Wireless LAN card may support a different set of 2.4 GHz channels. Consult your Authorized Wireless LAN or TOSHIBA Sales office for information about the radio regulations that apply in the countries/regions.

Wireless IEEE 802.11 Channels Sets (Revision B, G and draft N)

Frequency Range **Channel ID**	2400-2483.5 MHz
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467*1
13	2472*1

*1 Check if these channels can be used in your country/region.

When installing Wireless LAN cards, the channel configuration is managed as follows:

- For wireless clients that operate in a Wireless LAN Infrastructure, the Wireless LAN card will automatically start operation at the channel identified by the Wireless LAN Access Point. When roaming between different access points the station can dynamically switch to another channel if required.
- In a Wireless LAN Access Point, the Wireless LAN card will use the factory-set default channel (printed in bold), unless the LAN Administrator selected a different channel when configuring the Wireless LAN Access Point device.

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Appendix D

AC Power Cord and Connectors

The power cord's AC input plug must be compatible with the various international AC power outlets and the cord must meet the standards for the country/region in which it is used. All cords must meet the following specifications:

Length:	Minimum 1.7 meters
Wire size:	Minimum 0.75 mm^2
Current rating:	Minimum 2.5 amperes
Voltage rating:	125 or 250 VAC (depending on country/region's power standards)

Certification agencies

U.S. and Canada:	UL listed and CSA certified No. 18 AWG, Type SVT or SPT-2 two conductor
Australia:	AS
Japan:	DENANHO

Europe:

Austria:	OVE	**Italy:**	IMQ
Belgium:	CEBEC	**The Netherlands:**	KEMA
Denmark:	DEMKO	**Norway:**	NEMKO
Finland:	SETI	**Sweden:**	SEMKO
France:	UTE	**Switzerland:**	SEV
Germany:	VDE	**United Kingdom:**	BSI

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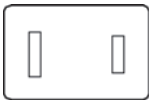
In Europe, power cords must be VDE type, H05VVH2-F and two conductor.

For the United States and Canada, plug configuration must be a 2-15P (250 V) or 1-15P (125 V) as designated in the U.S. National Electrical code handbook and the Canadian Electrical Code Part II.

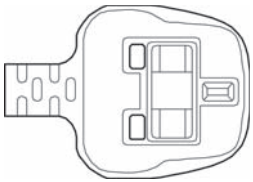
The following illustrations show the plug shapes for the U.S.A. and Canada, the United Kingdom, Australia and Europe.

USA and Canada



UL approved
CSA approved

United Kingdom



BS approved

Australia

AS approved

Europe

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appropriate agency

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Appendix E

TOSHIBA PC Health Monitor

The TOSHIBA PC Health Monitor software program monitors computer system functions such as power consumption, the cooling system and HDD/SSD Alert. It alerts users of specific system conditions via pop-up messages. It also tracks the usage of the computer and related devices, logging the service relevant information on the computer's hard disk drive.

- The collected information includes device operation time and number of actuations or status changes (i.e.: number of power button and Fn key combination uses, AC adaptor, battery, LCD, fan, HDD, sound volume, wireless communication switch, TOSHIBA Express Port Replicator and USB information), date of initial system use, and also computer and device usage (i.e.: power settings, battery temperature and recharging, CPU, memory, backlight illumination time, and temperatures for various devices), property (e.g., product name, model number, part number, serial number, BIOS version, FW version) of the system and components (e.g., Video device, Sound device, Network device, Hard Disk drive, Solid State drive, Optical Disc drive), operating system and software information (e.g., OS version, OS install date, Direct X version, Internet Explorer version, installed update program and driver lists). The stored data uses a very small portion of the total hard disk capacity, approximately 10MB or less per year.
- This information is used to identify and provide a notification of system conditions which may effect the performance of your Toshiba computer. It may also be used to help diagnose problems should the computer require service by Toshiba or Toshiba's authorized service providers. Additionally, Toshiba may also use this information for quality assurance analysis. Subject to the use restrictions above, the HDD data logged may be transferred to entities located outside of your country or region of residence (e.g., European Union). Those countries may or may not have the same data protection laws or data protection levels as required by your home country or region.
- Once enabled, you may disable the TOSHIBA PC Health Monitor at any time by uninstalling the software via Uninstall a program in the Control Panel. Doing so will automatically delete all collected information from the HDD.
- The TOSHIBA PC Health Monitor software does not extend or modify Toshiba's obligations under its standard limited warranty in any way. Toshiba's standard limited warranty terms and limitations apply.

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Starting the TOSHIBA PC Health Monitor

The TOSHIBA PC Health Monitor can be started using the following methods:

- Double click TOSHIBA PC Health Monitor in the Welcome Center.
- Click **Start** -> **All Programs** -> **TOSHIBA** -> **Utilities** -> **PC Health Monitor**.
- Click the icon in the notification area, then click the "**TOSHIBA PC Health Monitor is not enabled. Please click here for more details.**" message when it is displayed. (*)

No matter which method is used, the TOSHIBA PC Health Monitor explanation screen will be displayed.

Clicking "Next" will display the "**TOSHIBA PC Health Monitor Software Notice & Acceptance**" screen. Please carefully read the information displayed. Selecting "**Accept**" and clicking "**OK**" will enable the program. By enabling the TOSHIBA PC Health Monitor software, you agree with these terms and conditions and to the use and sharing of the collected information. Once the program is enabled, the TOSHIBA PC Health Monitor screen is displayed, and the program will begin monitoring system functions and collecting information.

(*) This message will no longer be displayed after clicking "Enable this software program now" or "Disable this software program now" on the "TOSHIBA PC Health Monitor Software Notice & Acceptance" screen.

If a TOSHIBA PC Health Monitor message is displayed

A message will be displayed if any changes which may interfere with the operation of the program are detected. If the following special message is displayed, carry out the procedures listed below.

If the "It is possible that the PC cooling performance has decreased. Please click [OK] to run the TOSHIBA Colling Performance Diagnostic Tool to check the cooling performance of your PC", message is displayed.

1. Click "OK" to start the "TOSHIBA Cooling Performance Diagnostic Tool".
2. It is possible that the PC cooling performance has decreased. We strongly recommend you have your PC checked by a Toshiba Authorized Service Provider.

If you must use the PC for a short period of time before taking it to the Toshiba Authorized Service Provider, we recommend you change the cooling method setting.

Click **Start** -> **Control Panel** -> **System and Security** -> **Power Options** -> **Balanced** -> **Change plan settings** -> **Change advanced power settings** -> **Settings Cooling Method** -> **On battery** AND **Plugged in** -> **Battery Optimized**.

This PC Cooling Performance Diagnostic Tool does not in any way expand or modify Toshiba's obligations under its standard limited warranty. Toshiba's standard limited warranty terms and limitations apply.

* If another message is displayed, follow the instructions displayed on screen.

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Appendix F

If your computer is stolen

Always take care of your computer and try to prevent it from being stolen. You are the owner of a valuable technical device, which may be highly attractive to thieves, so please do not leave it unattended in a public place. To further help protect against theft, security cables can be bought for use with your notebook when it is being used at home or in the office.

Make a note of your computer's machine type, model number, and serial number, and put it in a safe place. You will find this information on the underside of your notebook. Please also keep the receipt of the computer you purchased.

Should your computer be stolen, however, we'll help you try to find it. Before contacting TOSHIBA, please prepare the following information which is necessary to uniquely identify your computer:

- In which country was your computer stolen?
- What type of machine do you have?
- What was the model number (PA number)?
- What was the serial number (8 digits)?
- When was it stolen, i.e. date?
- What is your address, phone, and fax number?

To register the theft on paper, please follow these procedures:

- Fill in the TOSHIBA Theft Registration form (or a copy of it) below.
- Attach a copy of your receipt showing where your computer was purchased.
- Either fax or send the receipt and registration form to the address below.

To register the theft online, please follow these procedures:

- Visit *www.toshiba-europe.com* on the Internet. In the product area, choose **Computer Systems**.
- In the Computer Systems page, open the **Support & Downloads** menu and choose the **Stolen Units Database** option.

Your entries are used to track your computer at our service points.

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TOSHIBA Theft Registration

Send to: TOSHIBA Europe GmbH
Technical Service and Support
Blumenstrasse 26
93055 Regensburg
Germany

Fax number: +49 (0) 941 7807 921

Country stolen:

Machine type:
(e.g. Satellite U500/ U500D, Satellite Pro U500/U500D)

Model number:
(e.g. PSL50EYXT)

Serial number:
(e.g. 12345678G)

Date stolen: Year Month Day

Owner's details

Last name, first name:

Company:

Street:

Postal Code/City:

Country:

Phone:

Fax:

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Glossary

The terms in this glossary cover topics related to this manual. Alternate naming is included for reference.

Abbreviations

AC: Alternating current

ACPI: Advanced Configuration and Power Interface

AMT: Intel Active Management Technology

ASCII: American Standard Code for Information Interchange

BIOS: basic input/output system

bps: bits per second

CD: compact disc

CD-ROM: Compact Disc Read-Only Memory

CD-RW: Compact Disc-ReWritable

CMOS: complementary metal-oxide semiconductor

CPU: central processing unit

CRT: cathode ray tube

DC: direct current

DDC: display data channel

DDR: double data rate

DIMM: dual inline memory module

DVD: digital versatile disc

DVD-R: Digital Versatile Disc-Recordable

DVD-RAM: Digital Versatile Disc-Random Access Memory

DVD-R (Dual Layer): Digital Versatile Disc Recordable Dual Layer

DVD-ROM: Digital Versatile Disc-Read Only Memory

DVD-RW: Digital Versatile Disc-ReWritable

DVD+R (Double Layer): Digital Versatile Disc Recordable Double Layer

FDD: floppy diskette drive

GB: gigabyte

HDD: hard disk drive

HDCP: high-bandwidth digital content protection

HDMI: high definition multimedia interface

HDMI-CEC: high definition multimedia interface consumer electronics control

IDE: integrated drive electronics

IEEE: Institute of Electrical and Electronics Engineers

IMSM: Intel Matrix Storage Manager

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I/O: input/output
KB: kilobyte
LAN: local area network
LCD: liquid crystal display
LED: light emitting diode
MB: megabyte
MMC: multi media card
OCR: optical character recognition (reader)
PC: personal computer
PCI: peripheral component interconnect
RAM: random access memory
RGB: red, green, and blue
ROM: read only memory
RTC: real time clock
S/P DIF: Sony/Philips Digital Interface Format
SDRAM: synchronous dynamic random access memory
SLI: Scalable Link Interface
SO-DIMM: small-outline dual in line memory module
SSD: Solid state drive
TFT: thin-film transistor
USB: Universal Serial Bus
UXGA: ultra extended graphics array
VGA: video graphics array
WAN: wide area network
WSXGA: wide super extended graphics array
WSXGA+: wide super extended graphics array plus
WUXGA: Wide Ultra Extended Graphics Array
WXGA: wide extended graphics array
WXGA+: wide extended graphics array plus
XGA: extended graphics array

A

adaptor: A device that provides a compatible connection between two units. For example, the computer's internal display adapter receives information from the software and translates it into images on the screen. An adapter can take a number of forms, from a microprocessor to a simple connector: An intelligent adapter (one that is capable of doing some processing) may also be called a controller.

alphanumeric: Keyboard characters including letters, numbers and other symbols, such as punctuation marks or mathematical symbols.

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alternating current (AC): Electric current that reverses its direction of flow at regular intervals.

analog signal: A signal whose characteristics such as amplitude and frequency vary in proportion to (are an analog of) the value to be transmitted. Voice communications are analog signals.

application: A group of programs that together are used for a specific task such as accounting, financial planning, spreadsheets, word processing and games.

ASCII: American Standard Code for Information Interchange. ASCII code is a set of 256 binary codes that represent the most commonly used letters, numbers, and symbols.

B

backup: A copy of a file, usually on a removable disk, kept in case the original file is lost or damaged.

binary: The base two number system composed of zeros and ones (off or on), used by most digital computers. The right-most digit of a binary number has a value of 1, the next a value of 2, then 4, 8, 16, and so on. For example, the binary number 101 has a value of 5. See also ASCII.

BIOS: Basic Input/Output System. The firmware that controls data flow within the computer. See also firmware.

bit: Derived from “binary digit”, the basic unit of information used by the computer. It is either zero or one. Eight bits is one byte. See also byte.

Bluetooth: A short-range radio technology designed to simplify wireless communication among computers, communication devices and the Internet.

board: A circuit board. An internal card containing electronic components, called chips, which perform a specific function or increase the capabilities of the system.

boot: Short for bootstrap. A program that starts or restarts the computer. The program reads instructions from a storage device into the computer’s memory.

boot disk: See system disk.

bootable disk: See system disk.

bps: Bits per second. Typically used to describe the data transmission speed of a modem.

buffer: The portion of the computer’s memory where data is temporarily stored. Buffers often compensate for differences in the rate of flow from one device to another.

bus: An interface for transmission of signals, data or electric power.

byte: The representation of a single character. A sequence of eight bits treated as a single unit; also the smallest addressable unit within the system.

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C

cache memory: A section of very fast memory in which frequently used information is duplicated for quick access. Accessing data from cache is faster than accessing it from the computer's main memory. See also L1 cache, L2 cache.

capacity: The amount of data that can be stored on a magnetic storage device such as a floppy diskette or hard disk drive. It is usually described in terms of kilobytes (KB), where one KB = 1024 bytes, megabytes (MB), where one MB = 1024 KB and gigabytes (GB), where one GB = 1024 MB.

CardBus: An industry standard bus for 32-bit PC Cards.

CD: An individual compact disc. See also CD-ROM.

CD-R: A Compact Disc-Recordable disc can be written once and read many times. See also CD-ROM.

CD-ROM: A Compact Disc Read-Only Memory is a high capacity disc that can be read from but not written to. The CD-ROM drive uses a laser, rather than magnetic heads, to read data from the disc.

CD-RW: A Compact Disc-ReWritable disc can be rewritten many times. See also CD-ROM.

character: Any letter, number, punctuation mark, or symbol used by the computer. Also synonymous with byte.

chassis: The frame containing the computer.

chip: A small semiconductor containing computer logic and circuitry for processing, memory, input/output functions and controlling other chips.

Click: To press and release the pointing device's primary button without moving the pointing device. In the Windows® operating system, this refers to the pointing device's left button, unless otherwise stated. See also double-click.

CMOS: Complementary Metal-Oxide Semiconductor. An electronic circuit fabricated on a silicon wafer that requires very little power. Integrated circuits implemented in CMOS technology can be tightly packaged and are highly reliable.

cold start: Starting a computer that is currently off (turning on the power).

COM1, COM2, COM3 and COM4: The names assigned to the serial and communication ports.

commands: Instructions you enter at the terminal keyboard that direct the actions of the computer or its peripheral devices.

compatibility: 1) The ability of one computer to accept and process data in the same manner as another computer without modifying the data or the media upon which it is being transferred. 2) the ability of one device to connect to or communicate with another system or component.

components: Elements or parts (of a system) which make up the whole (system).

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computer program: A set of instructions written for a computer that enable it to achieve a desired result.

computer system: A combination of hardware, software, firmware, and peripheral components assembled to process data into useful information.

configuration: The specific components in your system (such as the terminal, printer, and disk drives) and the settings that define how your system works. You use the HW Setup program to control your system configuration.

controller: Built-in hardware and software that controls the functions of a specific internal or peripheral device (e.g. keyboard controller).

CPU: Central Processing Unit. The portion of the computer that interprets and executes instructions.

CRT: Cathode Ray Tube. A vacuum tube in which beams projected on a fluorescent screen-producing luminous spots. An example is the television set.

cursor: A small, blinking rectangle or line that indicates the current position on the display screen.

D

data: Information that is factual, measurable or statistical that a computer can process, store, or retrieve.

data bits: A data communications parameter controlling the number of bits (binary digits) used to make up a byte. If data bits = 7 the computer can generate 128 unique characters. If data bits = 8 the computer can generate 256 unique characters.

DC: Direct Current. Electric current that flows in one direction. This type of power is usually supplied by batteries.

default: The parameter value automatically selected by the system when you or the program do not provide instructions. Also called a preset value.

delete: To remove data from a disk or other data storage device. Synonymous with erase.

device driver: A program (called a “driver”) that permits a computer to communicate with a device.

dialog box: A window that accepts user input to make system settings or record other information.

disable: To turn a computer option off. See also enable.

disk drive: The device that randomly accesses information on a disk and copies it to the computer’s memory. It also writes data from memory to the disk. To accomplish these tasks, the unit physically rotates the disk at high speed past a read-write head.

disk storage: Storing data on magnetic disk. Data is arranged on concentric tracks much like a phonograph record.

display: A CRT, LCD, or other image producing device used to view computer output.

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documentation: The set of manuals and/or other instructions written for the users of a computer system or application. Computer system documentation typically includes procedural and tutorial information as well as system functions.

double click: To press and release the pointing device's primary button rapidly twice without moving the pointing device. In the Windows® operating system, this refers to the pointing device's left button, unless otherwise stated.

driver: A software program, generally part of the operating system, that controls a specific piece of hardware (frequently a peripheral device such as a printer or mouse).

DVD: An individual digital versatile (or video) disc. See also DVD-ROM.

DVD-R (+R, -R): A Digital Versatile Disc-Recordable disk can be written once and read many times. The DVD-R drive uses a laser to read data from the disc.

DVD-RAM: A Digital Versatile Disc-Random Access Memory is a high capacity, high performance disc that lets you store large volumes of data. The DVD-ROM drive uses a laser to read data from the disc.

DVD-ROM: A Digital Versatile Disc-Read Only Memory is a high capacity, high performance disc suitable for play back of video and other high-density files. The DVD-ROM drive uses a laser to read data from the disc.

DVD-RW (+RW, -RW): A Digital Versatile Disc-ReWritable disc can be rewritten many times.

E

echo: To send back a reflection of the transmitted data to the sending device. You can display the information on the screen, or output it to the printer, or both. When a computer receives back data it transmitted to a CRT (or other peripheral device) and then transmits the data to printer, the printer is said to echo the CRT.

enable: To turn on a computer option. See also disable.

erase: See delete.

escape: 1) A code (ASCII code 27), signaling the computer that what follows are commands; used with peripheral devices such as printers and modems.
2) A means of aborting the task currently in progress.

escape guard time: A time before and after an escape code is sent to the modem which distinguishes between escapes that are part of the transmitted data, and escapes that are intended as a command to the modem.

execute: To interpret and execute an instruction.

F

file: A collection of related information; a file can contain data, programs, or both.

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fingerprint sensor: The fingerprint sensor compares and analyzes the unique characteristics in a fingerprint.

firmware: A set of instructions built into the hardware which controls and directs a microprocessor's activities.

flash memory: Non-volatile memory that can be written to as well as read.Information in flash memory remains whether or not the computer is receiving power. This type of memory is used to retain your

fingerprint data: See also memory. Compare RAM and ROM.

floppy diskette: A removable disk that stores magnetically encoded data.

floppy diskette drive (FDD): An electromechanical device that reads and writes to floppy diskettes.

folder: An icon in Windows used to store documents or other folders.

format: The process of readying a blank disk for its first use. Formatting establishes the structure of the disk that the operating system expects before it writes files or programs onto the disk.

function keys: The keys labeled F1 through F12 that tell the computer to perform certain functions.

G

gigabyte (GB): A unit of data storage equal to 1024 megabytes. See also megabyte.

graphics: Drawings, pictures, or other images, such as charts or graphs, to present information.

H

hard disk: A storage device composed of a rigid platter or platters that can be magnetically coded with data. Hard disks hold much more information than diskettes and are used for long-term storage of programs and data. The primary (or only) hard disk in a computer is usually fixed, but some computers have secondary hard disks that are removable. By default, the hard disk is referred to as drive C.

hard disk drive (HDD): An electromechanical device that reads and writes a hard disk. See also hard disk.

hardware: The physical electronic and mechanical components of a computer system: typically, the computer itself, external disk drives, etc. See also software and firmware.

hertz: A unit of wave frequency that equals one cycle per second.

host computer: The computer that controls, regulates, and transmits information to a device or another computer.

hot key: The computer's feature in which certain keys in combination with the extended function key, FN, can be used to set system parameters, such as speaker volume.

HW Setup: A TOSHIBA utility that lets you set the parameters for various hardware components.

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I

icon: A small graphic image displayed on the screen or in the indicator panel. In Windows, an icon represents an object that the user can manipulate.

input: The data or instructions you provide to a computer, communication device or other peripheral device from the keyboard or external or internal storage devices. The data sent (or output) by the sending computer is input for the receiving computer.

instruction: Statements or commands that specify how to perform a particular task.

interface: 1) Hardware and/or software components of a system used specifically to connect one system or device to another.
2) To physically connect one system or device to another to exchange information.
3) The point of contact between user, the computer, and the program, for example, the keyboard or a menu.

I/O: Input/output. Refers to acceptance and transfer of data to and from a computer.

I/O devices: Equipment used to communicate with the computer and transfer data to and from it.

K

K: Taken from the Greek word kilo, meaning 1000; often used as equivalent to 1024, or 2 raised to the 10th power. See also byte and kilobyte.

keyboard: An input device containing switches that are activated by manually pressing marked keys. Each keystroke activates a switch that transmits a specific code to the computer. For each key, the transmitted code is, in turn, representative of the (ASCII) character marked on the key.

kilobyte (KB): A unit of data storage equal to 1024 bytes. See also byte and megabyte.

L

L1 cache: Level one cache. Memory cache built into the processor to help improve processing speed. See also cache memory, L2 cache.

L2 cache: Memory cache installed on the motherboard to help improve processing speed. It is slower than L1 cache and faster than main memory. See also cache memory, L1 cache.

LAN: A group of computers or other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other on the network.

Light Emitting Diode (LED): A semiconductor device that emits light when a current is applied.

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Liquid Crystal Display (LCD): Liquid crystal sealed between two sheets of glass coated with transparent conducting material. The viewing-side coating is etched into character forming segments with leads that extend to the edge of the glass. Applying a voltage between the glass sheets.

M

main board: See motherboard.

megabyte (MB): A unit of data storage equal to 1024 kilobytes. See also kilobyte.

megahertz: A unit of wave frequency that equals 1 million cycles per second. See also hertz.

memory: Typically refers to the computer's main memory, where programs are run and data is temporarily stored and processed. Memory can be volatile and hold data temporarily, such as RAM, or it can be nonvolatile and hold data permanently, such as ROM. A computer's main memory is RAM. See RAM, ROM.

menu: A software interface that displays a list of options on the screen. Also called a screen.

microprocessor: A hardware component contained in a single integrated circuit that carries out instructions. Also called the central processing unit (CPU), one of the main parts of the computer.

mode: A method of operation, for example, the Boot Mode, Sleep Mode or the Hibernation Mode.

modem: Derived from modulator/demodulator, a device that converts (modulates) digital data for transmission over telephone lines and then converts modulated data (demodulates) to digital format where received.

monitor: A device that uses rows and columns of pixels to display alphanumeric characters or graphic images. See also CRT.

motherboard: A name sometimes used to refer to the main printed circuit board in processing equipment. It usually contains integrated circuits that perform the processor's basic functions and provides connectors for adding other boards that perform special functions.

N

network: A collection of computers and associated devices that are connected by communications facilities. A network allows you to share data and peripheral devices, such as printers, with other users and to exchange electronic mail.

non-system disk: A disk for storing programs and data that cannot be used to start the computer. Compare system disk.

nonvolatile memory: Memory that is capable of permanently storing information. Turning the computer's power off does not alter data stored in nonvolatile memory.

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numeric keypad overlay: A feature that allows you to use certain keys on the keyboard to perform numeric entry, or to control cursor and page movement.

O

OCR: Optical Character Recognition (reader). A technique or device that uses laser or visible light to identify characters and input them into a storage device.

online state: A functional state of a peripheral device when it is ready to receive or transmit data.

operating system: A group of programs that controls the basic operation of a computer. Operating system functions include interpreting programs, creating data files, and controlling the transmission and receipt (input/output) of data to and from memory and peripheral device.

output: The results of a computer operation. Output commonly indicates data.
1) printed on paper, 2) displayed at a terminal, 3) sent through the serial port of internal modem, or 4) stored on some magnetic media.

P

parallel: Processes that occur simultaneously. In communications, it means the transmission of more than one bit of information at a time. On your computer, the parallel port provides a parallel communications interface between the computer and an appropriate device. Compare serial.

parity: 1) The symmetrical relationship between two parameter values (integers) both of which are either on or off; odd or even; 0 or 1.
2) In serial communications, an error detection bit that is added to a group of data bits making the sum of the bits even or odd. Parity can be set to none, odd, or even.

password: A unique string of characters used to identify a specific user. The computer provides various levels of password protection such as user and supervisor.

PC card: A credit-card-sized expansion card designed to increase the capabilities of notebook computers. PC Cards provide functions such as modem, fax/modem, hard disk drive, network adapter, sound card, or SCSI adapter.

PCI: Peripheral Component Interconnect. An industry standard 32-bit bus.

peripheral: Any device, such as a printer or joystick, that is attached to the computer and controlled by the computer's CPU.

pixel: A picture element. The smallest dot that can be made on a display or printer. Also called a pel.

plug and play: A capability with Windows that enables the system to automatically recognize connections of external devices and make the necessary configurations in the computer.

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pointing device: Any device, such as the TouchPad or a mouse, that enables you to move the cursor on the screen.

port: The electrical connection through which the computer sends and receives data to and from devices or other computers.

Power Saver: A TOSHIBA utility that lets you set the parameters for various power-saving functions.

program: A set of instructions a computer can execute that enables it to achieve a desired result. See also application.

prompt: A message the computer provides indicating it is ready for or requires information or an action from you.

R

Radio frequency interference (RFI) shield: A metal shield enclosing the printed circuit boards of the printer or computer to prevent radio and TV interference. All computer equipment generates radio frequency signals. The FCC regulates the amount of signals a computing device can allow past its shielding. A Class A device is sufficient for office use. Class B provides a more stringent classification for home equipment use. TOSHIBA portable computers comply with Class B computing device regulations.

Random Access Memory (RAM): Volatile memory that can be written to as well as read. Volatile here means that information in RAM is lost when you turn off your computer. This type of memory is used for your computer's main memory. See also memory. Compare ROM.

resolution: A measure of the sharpness of the images that can be produced by a printer or displayed on a screen. For a printer, resolution is expressed in dots per inch (dpi). For a screen, it is expressed as the number of pixels available horizontally and vertically

restart: Resetting a computer without turning it off (also called "warm boot", "soft reset" or "reboot"). See also boot.

RGB: Red, green, and blue. A device that uses three input signals, each activating an electron gun for a primary additive color (red, green, and blue) or port for using such a device. See also CRT.

RJ45: A modular LAN jack.

Read Only Memory (ROM): Non-volatile memory that can be read but not written to. Non-volatile here means that information in ROM remains whether or not the computer is receiving power. This type of memory is used to store your computer's BIOS, which is essential instructions the computer reads when you start it up. See also BIOS, memory. Compare RAM.

S

S/P DIF: A standard of digital interface for audio.

SCSI: Small Computer System Interface is an industry standard interface for connection of a variety of peripheral devices.

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SD/SDHC Card: Secure Digital cards are flash memory widely used in a variety of digital devices such as digital cameras and Personal Digital Assistants.

serial: Processes that occur one at a time. In communications, it means the transmission of one bit at a time sequentially over a single channel. On your computer, the serial port provides a serial interface between the computer and an appropriate device. Compare parallel.

SIO: Serial Input/Output. The electronic methodology used in serial data transmission.

soft key: Key combinations that emulate keys on the IBM keyboard, change some configuration options, stop program execution, and access the numeric keypad overlay.

software: The set of programs, procedures and related documentation associated with a computer system. Specifically refers to computer programs that direct and control the computer system's activities. See also hardware.

stop bit: One or more bits of a byte that follow the transmitted character or group codes in asynchronous serial communications.

system disk: A diskette that contains the operating system files needed to start the computer. Any diskette can be formatted as a system disk. A system disk is also called a "bootable disk", "boot disk" or a "startup disk." Compare non-system disk.

T

terminal: A typewriter-like keyboard and CRT display screen connected to the computer for data input/output.

TFT display: A liquid crystal display (LCD) made from an array of liquid crystal cells using active-matrix technology with thin film transistor (TFT) to drive each cell.

Touch Pad: A pointing device integrated into the TOSHIBA computer palm rest.

U

USB: Universal Serial Bus. This serial interface lets you communicate with several devices connected in a chain to a single port on the computer.

V

VGA: Video Graphics Array is an industry standard video adaptor that lets you run any popular software.

volatile memory: Random access memory (RAM) that stores information as long as power is supplied to the computer.

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W

warm start: Restarting or resetting a computer without turning it off.

Wi-Fi®: A registered trademark term of the Wi-Fi Alliance that stands for Wireless Fidelity, and is another term for the communication protocol to permit an Ethernet connection using wireless communication components.

window: A portion of the screen that can display its own application, document or dialog box. Often used to mean a Microsoft Windows window.

Wireless LAN: Local Area Network (LAN) through wireless communication.

Wireless WAN: Wide Area Network (WAN) through wireless communication.

write protection: A method for protecting a floppy diskette from accidental erasure.

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Index

A

AC adaptor, 2-13
    additional, 8-11
    connecting, 3-2
ASCII characters, 5-7

B

Battery, 6-3
    charging, 6-6
    disposal, -vi, -vii, 9-7
    extending life, 6-9
    monitoring capacity, 6-7
    problems, 9-6
    Real Time Clock, 1-4, 6-4, 9-8
    save mode, 1-10
Battery Pack, 2-8, 6-3
    additional, 8-11
    replacing, 6-9
Bluetooth, 1-8
    Bluetooth Stack for Windows by TOSHIBA, 4-38
Boot Priority, 7-2

C

Cleaning the computer, 4-45
Cooling Vents, 2-3

D

Display, 1-6
    automatic power off, 1-9
    controller, 1-6
    opening, 3-4
Display Controller, B-1
Documentation list, 1-2
DVD Super Multi Double Layer drive
    problems, 9-10
    using, 4-17

E

Equipment checklist, 1-1
eSATA/USB Combo Port, 2-3
ExpressCard, 8-2
    inserting, 8-2
    problems, 9-20
    removing, 8-3
External monitor, 1-6, 2-3, 8-11
    problems, 9-18

F

Fingerprint Sensor, 2-10
    problems, 9-20
    using, 4-2
Floppy diskette care, 4-32
Fn Sticky key, 5-5
Fn+1(TOSHIBA Zooming Utility reduce), 5-4
Fn+2 (TOSHIBA Zooming Utility enlarge), 5-4
Fn+ESC(Mute), 5-3
Fn+F1(Lock), 5-3
Fn+F10 (Enable Keypad), 5-4
Fn+F11 (Number Lock), 5-4
Fn+F12 (Scroll Lock), 5-4
Fn+F2(Power plan), 5-3
Fn+F3 (Sleep), 5-3
Fn+F4 (Hibernate), 5-3
Fn+F5 (Output), 5-3
Fn+F6 (Brightness decreases), 5-3
Fn+F7 (Brightness increases), 5-3
Fn+F8 (Wireless), 5-3
Fn+F9 (TouchPad), 5-4
Fn+space (Zoom), 5-4
Fn+Z (Keyboard Backlight), 5-4
Function keys, 5-2

G

Graphics Controller, 1-6

H

Hard disk drive, 1-4
    automatic power off, 1-9
HDD Protection, 1-10, 4-46
Hibernation Mode, 1-11, 3-8

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Hot keys, 1-9, 5-3
Brightness decreases, 5-3
Brightness increases, 5-3
Enable Keypad, 5-4
Keyboard Backlight, 5-4
Lock, 5-3
Mute, 5-3
Number Lock, 5-4
Power plan, 5-3
Scroll Lock, 5-4
Sleep, 5-3
TOSHIBA Zooming Utility (enlarge), 5-4
TOSHIBA Zooming Utility (reduce), 5-4
TouchPad, 5-4
Wireless, 5-3
Zoom, 5-4
HW Setup, 1-13, 7-1
accessing, 7-1
Boot Priority, 7-2
display, 7-2
general, 7-1
keyboard, 7-3
LAN, 7-3
password, 7-2
USB, 7-3

K

Keyboard, 5-1
emulating enhanced keyboard, 5-2
F1 ... F12 function keys, 5-2
Fn Sticky key, 5-5
hot keys, 5-3
problems, 9-8
typewriter keys, 5-1
Windows® special keys, 5-5
Keypad overlay, 5-5
Numeric mode, 5-6
temporarily using normal keyboard (overlay on), 5-6
turning on the overlays, 5-5

L

LAN, 4-39
cable types, 4-40
connecting, 4-40
disconnecting, 4-40
jack, 2-5
problems, 9-19

M

Media care, 4-31
CD/DVDs, 4-31
Floppy diskettes, 4-32
Memory card care, 8-7
Memory, 1-3
expansion, 8-7
installing, 8-5
removing, 8-6
Modem, 4-34
connecting, 4-36
disconnecting, 4-36
properties menu, 4-35
region selection, 4-34
Monitor, external, 1-6, 2-3, 8-11
Moving the computer, 4-45

O

Optical Disc Drive, 1-5, 2-5, 2-12
using, 4-17

P

Password
power on, 1-9
Starting the computer by, 6-11
Pointing device, 1-6, 9-13
TouchPad, 2-9, 4-1, 9-13
TouchPad control buttons, 2-9
Ports, 1-6
Power
conditions, 6-1
Hibernation Mode, 3-8
indicators, 6-2
panel power off/on, 6-12
Shut Down mode (Boot mode), 3-6
Sleep Mode, 3-6
system auto off, 6-12
turning off, 3-6
turning on, 3-5

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Power-up modes, 6-12
Problems
AC power, 9-5
analyzing, 9-2
battery, 9-6
DVD Super Multi Double Layer drive, 9-10
ExpressCard, 9-20
Fingerprint Sensor, 9-20
Hard disk drive, 9-9
Keyboard, 9-8
LAN, 9-19
LCD panel, 9-8
Memory expansion, 9-17
Modem, 9-18
Monitor, 9-18
Pointing device, 9-13
Real Time Clock, 9-8
Recovery Discs, 9-10
SD/SDHC memory card, 9-12
Sound system, 9-18
USB, 9-14
USB floppy diskette drive, 9-12
Wireless LAN, 9-19

R

Recovery Discs, 3-12, 3-14
problems, 9-10
Recovery hard disk drive, 3-11, 3-12
Restarting the computer, 3-10

S

Security lock, 8-13
Sleep Mode
setting, 3-6
system automatic, 1-9
Slot-Loading ODD, 2-5
inserting, 4-20
removing, 4-22
Soft keys, 5-2
Sound system, 4-32
headphone jack, 2-3
microphone, 2-11, 4-14
microphone jack, 2-3
problems, 9-18
Volume Button, 2-9

T

TOSHIBA Accessibility, 1-12
TOSHIBA Assist, 1-12
TOSHIBA Button Support, 1-12
TOSHIBA Components Common Driver, 1-12
TOSHIBA ConfigFree, 1-15
TOSHIBA Disc Creator, 1-14
TOSHIBA DVD PLAYER, 1-13, 4-30
TOSHIBA Face Recognition, 1-14
TOSHIBA Flash Cards, 1-12
TOSHIBA HDD Protection, 4-46
TOSHIBA PC Diagnostic Tool, 1-12
TOSHIBA PC Health Monitor, 1-11, E-1
TOSHIBA support, 9-21
TOSHIBA Theft Registration, F-2
TOSHIBA USB Sleep and Charge Utility, 1-15, 4-9
problems, 9-16
TOSHIBA Value Added Package, 1-12
TOSHIBA Zooming Utility, 1-12
TouchPad
location, 2-9
using, 4-1

U

USB devices
problems, 9-14

V

Video RAM, 1-3
Volume Button, 2-9

W

Web Camera, 2-9
using, 4-12
Wireless Communication Switch, 1-8, 4-37
Wireless LAN, 1-8, 4-37, 9-19

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